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SELECTIVE PLACEMENT

FOR THE

HANDICAPPED

WAR MANPOWER COMMISSION
UNITED STATES EMPLOYMENT SERVICE
WASHINGTON, D. C.
Revised February 1945

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SELECTIVE PLACEMENT FOR THE HANDICAPPED

Information for the placement
of disabled applicants
in competitive employment

WAR MANPOWER COMMISSION
UNITED STATES EMPLOYMENT SERVICE
Washington, D. C.

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ACKNOWLEDGMENTS

In the preparation of this handbook, the War Manpower Commission is deeply indebted to other agencies and organizations interested in the problems of the physically and the mentally handicapped. The extensive work of the Office of Vocational Rehabilitation in the Federal Security Agency has helpfully made available much technical information on the nature of handicaps and the relation of workmen's compensation to employment of the physically handicapped. It has also helped define the responsibility of the Employment Service. Great appreciation is extended to the United States Public Health Service for its advice and comment.

Full use has been made of the experience of Employment Services in States where a well-defined program for service to the handicapped has been in operation. Information and training manuals and aids developed in New York, California, Connecticut, Pennsylvania, Minnesota, and the District of Columbia were particularly helpful, as were transcripts of medical lectures given by doctors in New York to interviewers working with the handicapped. Special appreciation is due to personnel in these services for their interest and valuable cooperation in the preparation of this handbook.

For the preparation of the revision, field staff were called to headquarters to present ideas acquired from use of the technique in the local United States Employment Service offices.

CONTENTS

		Page
Acknowledgments		II
Foreword		IV

PART I

HOW TO SERVE THE HANDICAPPED

Section		
I.	The Handicapped and the Employment Service	1
II.	The Selective Placement Program	5
III.	The Application Process	10
IV.	The Placement Process	24
V.	Preparing Applicants for Employment	33
VI.	Follow-up and Job Adjustment	39
VII.	Responsibility Toward Applicants Unable to Compete in Labor Market	41
VIII.	Additional Aids for Serving Disabled Veterans	42
IX.	Summary of Laws Affecting the Handicapped	45
X.	Summary	49

PART II

SPECIFIC DISABILITIES AND THEIR EVALUATION

I.	Hearing and Speech Handicaps	51
II.	Orthopedic Handicaps	54
III.	Respiratory Handicaps	59
IV.	Cardiovascular Handicaps	62
V.	Visual Handicaps	67
VI.	Miscellaneous Physical Handicaps	72
VII.	Neurological Handicaps	80
VIII.	Mentally Retarded	84
IX.	Emotional Handicaps	86

PART III

PHYSICAL DEMANDS ANALYSIS AND PHYSICAL CAPACITIES APPRAISAL

I.	Introduction	93
II.	Physical Demands Analysis	95
III.	The Physical Demands Form	97
IV.	Physical Capacities Appraisal	107
V.	The Physical Capacities Form	109
VI.	Matching Physical Capacities with Physical Demands	116
VII.	Definitions of Physical Activities	125
VIII.	Definitions of Working Conditions	125

Appendix		127
Bibliography		128
Index		133

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FOREWORD

DEVELOPMENT OF THE SELECTIVE PLACEMENT PLAN

Contrary to widely accepted beliefs and practices, the handicapped do not constitute a distinct segment of the population with characteristics and qualities quite apart from their fellows. Instead they present all of the individual characteristics of aptitudes, attitudes, interests, and ambitions. They are alike in far more respects than they are unlike their fellows.

The Selective Placement process, which the United States Employment Service has developed, is based on this recognition of individual differences among handicapped persons, with respect to their skills, knowledges, abilities, ambitions, interests, and their physical capacities. In the placement of handicapped applicants, as in the placement of the so-called nonhandicapped applicants, emphasis is placed upon the best matching of the applicant's abilities and the actual requirements of jobs.

Just as there are individual differences among applicants for positions, there are also great differences in the physical activities and working conditions required by various jobs. Each job has its own specific pattern of physical demands which requires that it be considered independently of other jobs. Some jobs may require great output of energy because of lifting and carrying heavy equipment. Some jobs may allow the worker to be seated, and to use only his arms and hands. Some jobs may require the use of two hands, some of one. Some may require dexterity in fingering, some may not, and so on. The same job in each of two or more establishments may, as a matter of fact, be different because of different working conditions, different production methods or different building construction.

The "physical demands technique" is that part of the Selective Placement process which the Employment Service has developed to enable the matching of the specific physical activities and working conditions of jobs with the physical capacities of the worker. Matching an applicant's physical capacities to the physical demands of a job for which he meets experience, training and other requirements constitutes a major phase of Selective Placement.

The program for the study of the handicapped which led to the development of the Selective Placement plan was started in 1936 in the St. Paul-Minneapolis center for the occupational analysis program of the United States Employment Service. Extensive review of literature, material, and experience dealing with occupations for the handicapped was made, and the conclusion reached that the outmoded conception of lists of occupations for the various types of handicapped workers, emphasized disabilities and did not adequately meet the need for systematic and proper placement. The shortcomings of such lists were shown by various factors. Such lists tend to limit work opportunities by identifying workers with a specific list of jobs, instead of providing information which would enable an individual worker's physical qualifications to be matched with any job for which there might be an opening. They assume that all individuals who have a specific disability, such as one hand, are incapacitated to the same degree; whereas individual differences among such a group would vary widely. They assume that jobs having the same job title have a similar pattern of physical demands, whereas the demands vary widely from job to job and plant to plant. And finally,

they emphasize a worker's limitations, which lead to his being classified according to his disability instead of his abilities. In accordance with these concepts, lists of occupations for the handicapped were discontinued.

In advocating its present approach, the Employment Service refined the job analysis technique as it relates to physical requirements of jobs. The "physical demands analysis technique" has now been adopted for all studies and releases relating to occupations for the handicapped. Through this approach, every job in the Dictionary of Occupational Titles is considered a suitable job for persons with some degree of handicap. No job needs to be set aside for the handicapped, but all jobs can be regarded as potentially suitable.

Specific forms and techniques have been developed in connection with analyzing physical demands of jobs, and in indicating the physical activities a particular individual is capable of performing and the working conditions to which he may safely be exposed. The present forms used in connection with physical demands analysis and physical capacities appraisals for plant use were worked out in 1943 by the Division of Occupational Analysis of the War Manpower Commission. The Employment Office Service Division developed a Guide, embodying the same principles, for use in interviewing handicapped applicants in local offices.

In connection with the preparation of instructional materials for the use of the technique, workers from the field were called in to headquarters to prepare a handbook for the use of analysts in making studies of jobs, and for local office personnel in making placement of the handicapped. The volume, Selective Placement for the Handicapped, was prepared under the joint auspices of the Veterans Employment Service, the Bureau of Placement, and the Bureau of Manpower Utilization of the War Manpower Commission. The present edition is a revision of this publication. Extensive training materials were designed under the direction of the Employment Office Services Division of the Bureau of Placement to acquaint operating personnel with the Selective Placement process.

The Selective Placement plan is now being utilized not only by the public employment offices, but by private employers and establishments. Through such trade associations and other organizations the techniques are being publicized by the media of handbooks and other materials.

In the public employment offices, all personnel are trained to recognize the need for Selective Placement and to aid in promoting the interests of the handicapped with employers. The efforts of specialized personnel are closely coordinated with those of other personnel to make the most effective use of all employment service work in behalf of the handicapped, and to remove possibility of duplicating efforts. Organizational plans of the employment service provide for part or full-time technically trained personnel at the administrative levels in each State to give leadership to the State program for the handicapped. The plans likewise provide for one or more technically qualified and trained persons in each local office to give Selective Placement services.

Through promotion by the Employment Service, the technique has been adopted by employers. Employers' interest in the employment of returning veterans has aided materially in the utilization of the plan. Since the plan was first proposed, it has been presented to literally hundreds of employers. The plan for in-plant programs embodies the same techniques which were developed and adopted for Employment Service use. The plan provides for a job analysis of all jobs in the plant, an appraisal of the physical capacities of applicants or workers in like terms, and placement or transfer by matching capacities of the individuals with the requirements of the job.

Community interest has evidenced itself in group study of the Selective Placement technique in order that it can be more widely extended. Universities or

other training institutions have introduced courses on Selective Placement for the handicapped. Community or employer "institutes" have been put into effect as one method of bringing together personnel people, plant physicians, individuals from State, Federal, or private agencies concerned with services to the handicapped, and other interested individuals, for discussion and instruction in the Selective Placement plan.

The principles of the program have been incorporated in publications of private firms and associations; such as insurance companies and trade associations, for general distribution to their members; and private plants, for internal operating procedures. For example, the National Industrial Conference Board has extracted the principles of Selective Placement from the handbook of the United States Employment Service, "Selective Placement for the Handicapped," and incorporated them in their publication entitled "Employment of Handicapped Persons." The Liberty Mutual Insurance Company and the American Mutual Casualty Companies have issued publications for guidance of their personnel or member companies. The Textile World and a publication of the American Hotel Association have provided specific suggestions and instructions to their members relative to use of the technique.

The present handbook, "Selective Placement for the Handicapped," revised February 1945, was prepared on the basis of experience and recommendations of personnel called in from the field offices of the War Manpower Commission. Experience in placing applicants in local offices, in training staff members in the use of the technique, and in organization and management methods were taken into account. It is intended that the practical approach which the Selective Placement plan presents will continually be refined on the basis of actual experience in placement which achieves full utilization of the abilities of handicapped workers.

PART I

HOW TO SERVE THE HANDICAPPED

I. THE HANDICAPPED AND THE EMPLOYMENT SERVICE

The Employment Service, by virtue of being a public agency, has the responsibility for serving all employable persons who come to it seeking work. All persons are legally employable if they have no communicable disease and have reached an age recognized by State or local laws as permitting of work. It is obvious that among this vast number of persons who legally may work, the majority prove readily placeable through the application of regular employment service tools and techniques. Many, however, are considered to be handicapped for employment by reason of physical, emotional, or social characteristics. But the Employment Service may not choose to serve only the readily placeable. If more effort must be expended to place the so-called "handicapped" applicants, then that effort must be made in fulfilling a public duty.

The socially handicapped mentioned above refer to persons who find difficulty securing work (that is, have an employment handicap) because of prison records, and to racial, religious, or other minority groups, which may be disadvantaged by discriminatory attitudes in any given community. Although the socially handicapped are served by the Employment Service, this handbook does not deal with the problems presented by that group but is confined to discussion of the first two groups.

A. *Definitions of Handicaps*

1. *Handicapped Applicant*

Any applicant is considered handicapped when he has a physical, mental, or emotional impairment or deficiency which:

a. Requires the applicant to modify or change his occupation.

b. Makes it difficult for the applicant to secure employer acceptance for suitable work.

c. Requires special consideration to prevent the applicant from undertaking work likely to—
(1) aggravate the disability or
(2) cause him to jeopardize the health or safety of others.

d. Restricts the opportunities of an inexperienced handicapped applicant for entering industry, trade or profession.

e. Requires referral to a cooperating agency for restorative or other adjustment services.

For Employment Service purposes, an applicant will usually be found to be handicapped when he has any disability starred on the list found on pages — to —.

Hereafter in this handbook when the term "handicapped" is used without modification, it will be used to include those who are physically or emotionally handicapped and those who are mentally retarded.

2. *Employment Handicap and Relation to Other Handicaps*

An "employment handicap" is the broadest term commonly used in the Employment Service to indicate any problem in placement. Thus, aliens and various minority groups have an employment handicap. Similarly, any person who has not adequate vocational skills may experience difficulty in securing work. It is extremely important that the different types of

handicaps should not be confused. A deaf printer, for example, is *physically* but not *occupationally* or vocationally handicapped since he has a definite trade in which the ability to hear is not an employment qualification. He is considered to have an *employment* handicap, however, because employer attitudes are likely to keep him out of work unless his abilities are satisfactorily explained to an employer by an interviewer.

While some physically, mentally, or emotionally handicapped people are also occupationally handicapped in that they possess no skills, most handicapped applicants either have some acquired skills or the ability to acquire them. Handicapped applicants encounter the same problems of vocational adjustment as do non-handicapped applicants, but these problems are intensified by the presence of the disability. For example, vocational counseling for handicapped young people must encompass not only regular aptitude testing and evaluation of past training but also consideration of job areas which can be successfully engaged in with the capacities left unharmed or undiminished by the disability, and which do not aggravate the physical or emotional condition. Although many people handicapped through accident or illness can return to their former or related occupations, some must seek entirely new occupations and some may require retraining. The employment service does not, of course, provide this retraining. Its personnel, however, recognizing that such a step is necessary, directs applicants to the proper agency, notably the State vocational rehabilitation agency (see sec. V below). All guidance and retraining, however, may be of no avail if an employer cannot be found to hire the applicant.

B. *Social Attitudes and the Handicapped*

In theory, any man or woman who can produce the required amount and quality of work during a regular work period should not have to be considered handicapped just because of some physical, mental or emotional characteristic. For example, a person with a disabled leg may be limited in his ability to walk rapidly, to run, and to lift and carry more than 25 pounds. He may, however, be working in a job where he needs only his ability to see, to hear, and to use his hands. Thus his "disability" does not affect his work productivity nor does it limit his intelligence, educational achievements, additional vocational interests, and aptitudes, and it certainly need not affect his personality and work habits. He is *like* the non-handicapped in more respects than he is different, and he has sufficient *abilities* remaining to enable him to be a useful worker and useful member of society, provided society itself does not impose artificial restrictions inconsistent with his capacity.

Yet, because of the attitudes of employers and potential co-workers, it has been necessary to define handicapped applicants as set forth above. A handicapped person usually must make more contacts than the average person before finding an employer who will hire him. What are the fundamental causes of employer resistance?

In primitive times, when man had to struggle bitterly for self-preservation, tribes killed or abandoned the crippled and aged who could not provide for themselves, so as not to endanger the welfare of the larger group. Even in later periods, due to a failure to understand abnormalities and their causes, a person with a handicap was superstitiously regarded as possessed of the devil.

With advances in medical science, particularly the science of orthopedics in the nineteenth century and psychiatry in the twentieth century, new attitudes began to develop which held hope for both the correction or improvement of defects and for the achievement of economic independence for many of the handicapped. Greater skill in the treatment of diseases and popularized scientific knowledge of their causes and effects have restored

many individuals to normal status as self-supporting citizens.

The remarkable advances in the treatment o fall types of disabilities in World Wars I and II, as well as the public attitude toward disabilities incurred in a patriotic service, have done much to improve the situation of all persons with physical impairment. (Utilization of persons with some emotional disturbance tends to lag because the younger science of psychiatry has not had enough time to change old attitudes.) In addition, wartime labor shortages compel employers to tap the reservoir of skill found among handicapped persons who cannot meet the extremely high physical and mental standards of the armed forces. The performance of the "handicapped" thus given a chance, some for the first time, frequently amazes employers and may destroy some of their former misconceptions. Social prejudices as deeply grounded as those toward the handicapped, however, die hard. Even though society now recognizes a responsibility in the care, education, and vocational adjustment of the disabled, there are still artificial limitations, such as single standard medical examinations (see pp. 27 and 49 below), which prevent maximum employment opportunities.

C. *Responsibility of the Employment Service for Serving the Handicapped*

Employment Service personnel must use regular and special techniques and expend greater effort in accomplishing for the handicapped the same service—placement—that is accomplished for the average applicant in the normal course of Employment Service operations. Surveys of the unemployed repeatedly show relatively greater unemployment among the handicapped than among the nonhandicapped. In addition to the fact that the Employment Service must serve all employable persons, the following material points out other basic factors governing the responsibility of the Employment Service.

1. *Size of the Problem*

a. The Physically Handicapped

According to estimates of the United States Public Health Service based on the National Health Survey conducted in 1935–36, it has been generally accepted that there are between 2½ and 3 million physically handicapped individuals available for employment. Of this unemployed reserve about *half* need rehabilitation services before they can be employed in industry, while perhaps a million can be placed without further training. The United States Bureau of Labor Statistics, Division of Industrial Accidents, estimates that this group is maintained by the addition each year of more than 100,000 workers who are physically impaired in industrial accidents. Other sources indicate that each year of the war can be expected to add a large number of injured and disabled.

b. The Mentally Retarded

It has been estimated that 4½ percent of the population, or about 6,000,000 are feeble-minded; only about 1 percent of these are in institutions. Not all of the rest are of employable age, but probably a significant number might conceivably seek work.

c. The Emotionally Handicapped

It is much more difficult to estimate the number of emotionally handicapped at any time. Some indications of the scope of the problem, however, may be gleaned from the fact that about 1 out of every 20 persons born will eventually spend some part of his life in a mental hospital, and probably 1 out of 10 will be incapacitated by emotional disease at some time during his life, though not sent to a mental hospital. Included among these are the 591,365 persons listed in the 1940 census as confined to mental institutions. Many of these, upon discharge, can

be presumed to have difficulty securing work.

War precipiates an emotional disturbance in some people. It should be remembered that many of these people who would not be or were not able to adjust to the rigid disciplines of the fighting forces will be fully capable of normal civilian activity. A fuller discussion of when they should or should not be deemed handicapped will be found in the section on emotional handicaps.

Each year adds tens of thousands to the numbers of handicapped. In wartime particularly the rate rises rapidly as great masses of inexperienced workers are used by industry, as men are disabled in battle and as the increased pace and strain of a world at war tax the mental equilibrium of fighters and workers.

There is considerable overlapping in the figures cited above. In addition, it should be recognized that many slight deviations included would not be considered handicaps by the Employment Service were it not for the restrictive type of medical examination used by many employers.

2. *Legal Responsibility*

The Employment Service acquired a legal responsibility in the Wagner-Peyser Act (1933) to provide service to the handicapped and to maintain a placement service for veterans, including disabled veterans. The Servicemen's Readjustment Act of 1944 (G. I. Bill) continues the function of veteran placement in the Employment Service. In addition, the G. I. Bill of Rights provides for "an effective job counseling * * * service" as well as placement service within the United States Employment Service for veterans, including handicapped veterans.

Another legal mandate augmenting the responsibility of the Employment Service is found in the Vocational Rehabilitation Act of 1943 which requires that the State rehabilitation agencies establish cooperative relationships with the Employment Service for the placement of the handicapped, in line with which a Joint Statement of Principles has been issued by the War Manpower Commission and the Office of Vocational Rehabilitation.

3. *Social Responsibility*

A self-sustaining person is not a burden to society. The sooner qualified handicapped people are made self-sustaining through suitable placement, the better for them, their families, friends, and the community. The Employment Service is the logical agency for placing the handicapped because (*a*) it has the staff, tools developed especially for the purpose such as interviewing techniques, physical demands analyses, job families, and analyses, and a broad field of employer contacts; (*b*) it emphasizes the right thing—fitness for the job; and (*c*) it has established cooperative relations with other agencies, such as the vocational rehabilitation agencies, to help individuals secure any nonplacement services needed. Job referrals are made on the basis of ability, not need or sympathy, and the handicapped workers are not segregated from the nonhandicapped in a manner which places undue emphasis on their limitations.

4. *Administrative Responsibility*

Administration and management of the public employment service at all levels are responsible for service to the physically handicapped. Personnel must be assigned to the function, trained, and supervision and follow-up training given to them. Management must be responsible for evaluation of service to the handicapped throughout the entire local office.

Management must be responsible for insuring that employers in the community are informed regarding the program for placement of the handicapped.

This can be done by sponsorship by area, regional, or national management-labor committees, through speeches, meetings, group employer training meetings in which the Selective Placement technique is explained, as well as the regular program of field visiting, etc.

II. THE SELECTIVE PLACEMENT PROGRAM

With a clear recognition of its responsibility for serving the handicapped, the Employment Service has developed a Selective Placement Program. This program is based on the physical demands analysis approach and supplemented by such other activities as interpreting workmen's compensation to employers and cooperation with other community agencies prepared to serve the handicapped in ways not covered by the Employment Service.

A. *Basic Elements for Successful Placement*

Placing the handicapped is but slightly different from placing the nonhandicapped. The interviewer will find he still has to:

1. Know the applicant.
2. Know the job.
3. Place on the basis of qualifications just as he did for the nonhandicapped applicant.

Where then is the difference? It is largely one of degree. The interviewer who places the handicapped must get information regarding previous employment, education, vocational training, interests, and aptitudes, but must consider to a greater degree his physical capacity for work and his capacity to work under various job tensions and pressures. This includes thorough familiarity on the part of the interviewer with existing methods for classifying applicants occupationally. As for jobs, the interviewer will have to know skill and experience requirements, and also physical activities demanded and the working conditions to which the worker will be exposed.

B. *Definition of Selective Placement*

Selective Placement for the handicapped is an individualized process of employment placement based on intensive application of regular and special tools and techniques for the adjustment of the handicapped in suitable jobs.

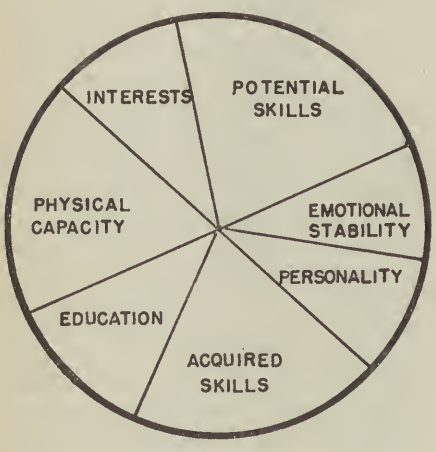
1. *What the Physical Demands Approach Is*

The physical demands approach is an application and amplification of the job analysis technique. The latter is recognized as one of the best techniques for developing specific occupational information needed by placement interviewers. A summary of a job shows *what* the worker does, *how* and *why* he does it, and what *skills, knowledge, and abilities are involved.* Worker analysis includes the use of aptitude tests, oral trade questions, and similar tools to develop information concerning applicants. The placement process then is the matching of worker and job, aided by the use of such tools.

The physical demands approach is the best technique yet developed for knowing the *handicapped* applicant better, knowing the job better, and thus placing handicapped workers on the basis of qualifications. Physical demands analysis is simply that part of job analysis which describes the physical activities and environmental factors of jobs. Physical capacities appraisal is that part of worker analysis which evaluates the physical activities a particular individual is capable of performing and the working conditions to which he may be safely exposed. Matching an applicant's physical capacity to the physical demands of a job for which he meets experience, training, and other requirements constitutes a major phase of Selective Placement.

Thus it can be seen that the physical demands approach, while stressing the

analysis of activity and working condition factors of jobs, and the physical and emotional capacity of individuals is not divorced from skill, interest, aptitude, and other factors. *All* must be considered. In some cases the physical demands factors may be more important than others. Represented graphically, the composite nature of the employment qualifications of an individual might look something like this:



Obviously all segments are not of equal importance or strength in every individual, nor do all jobs require that the segments be equal in size, or even that all segments be used.

2. *Characteristics of the Physical Demands Approach*

The physical demands approach is positive, individual, and specific.

a. Positive

This approach emphasizes the specific capacities of workers rather than their handicaps by pointing out what a worker can do rather than stressing his limitations and what he cannot do. All workers therefore may be looked upon from the same point of view, namely, as possessing various degrees of physical capacity for work, not as being able-bodied, or not able-bodied.

Too often in the past, workers have been classified on the basis of their disabilities or at best as being suitable for light, moderate, or heavy work. None of these generalizations tell what a worker's specific capacities are.

The positive approach subordinates reference to the negative features or handicaps of workers. The word "handicapped" may even eventually be forgotten.

b. Individual

The physical demands approach deals with all workers as individuals rather than as groups brought together under the heading of a common disability. It is axiomatic that two people with identical physical disabilities (e. g., loss of hearing, glaucoma, arrested tuberculosis) may make entirely different adjustments to the disability; thus it is meaningless to generalize.

This points up to the shortcomings of lists of jobs suitable for any group of the handicapped, such as a list of jobs suitable for workers with rheumatic heart disease. Due to the basic variation in the capacities of individuals in any disability group, lists of suitable jobs for such groups have little value. They may even be harmful in that a person not well adjusted to his disability may not be able to meet the demands of a particular job on the list and in that interviewers may neglect to consider some applicants for jobs not on the list. Obviously, no list can be exhaustive and so a tendency to rely on a list may militate against the best interests of many an applicant.

c. Specific

The physical demands approach comes closer than former techniques in determining the specific physical and environmental requirements of jobs and specific capacities of workers in order that these factors may be matched. This overcomes the shortcomings of approaches which have employed terms that were

too general and too subject to varying interpretations. Factors of frequency, intensity, and duration are more adequately accounted for in the physical demands approach.

3. *Application of the Physical Demands Approach*

The physical demands approach has wide applicability. While it has developed principally as a tool for Selective Placement of the handicapped it may also be used for placing any other groups that present particular problems affecting physical capacity. Thus, it may be used for placing women in industries or occupations which have not used women in the past; for placing older workers with physical capacities somewhat diminished by age; even for placing able-bodied workers on jobs which are particularly energy consuming. In addition to having a wide applicability among various types of people, the physical demands approach may be applied in a wide variety of functions.

a. Placement and transfer

As has been pointed out before, the physical demands approach is the keystone of the Selective Placement program. Equally significant is the concept that Selective Placement should be used not only in initial job placement but also at any time that a worker has to be transferred from one job to another in a plant.

b. Counseling and training

In counseling and vocational guidance with physically immature persons, as well as in counseling and vocational rehabilitation work with those whose skills have been lost or impaired as a result of illness or injury, the physical demands approach may be extremely useful as assisting in determining the direction and kind of training the individual should receive.

c. Supervision and job adjustment

The use of a physical demands approach enables job supervisors and interviewers to follow up placement, and to assist the worker in making a satisfactory adjustment to the job on which he has been placed. This may even include a certain amount of minor reengineering of the job. Carried a step further, physical demands analysis, by revealing some of the hazards associated with the specific physical and environmental requirements of jobs frequently enables the engineering and safety departments of large plants to reduce or eliminate undesirable factors, thus making jobs not only less energy consuming but also less hazardous.

d. Evaluation

The physical demands approach provides a specific basis whereby administrators not only in the Employment Service but also in industry may evaluate the utilization of qualified handicapped workers.

4. *Other Advantages of the Physical Demands Approach*

a. Common terminology

By translating physical job requirements and applicant's physical capacities into physical activities and working conditions, the physical demands approach provides a common nonmedical language which can be used by job analysts, physicians, and personnel workers, whether in private industry or Government service.

b. Diagnosis confidential

When a full and adequate physical capacity report is received from a private doctor by the interviewer, the report enables the interviewer to refer the applicant to an employer without revealing diagnostic data. Similarly, within industrial plants while the copy of a physical capacity report retained by the medical department may contain the diagnosis, the copy sent to and used by the personnel officer for placement of the applicant need not have diagnostic information. The personnel officer need not know, for example, what

particular disability is behind the weight-lifting restriction; all he needs to know is that the worker has a capacity for lifting, let us say, 20 pounds or that he may do no lifting at all.

5. ***Who Participates in Physical Demands Analysis***

The over-all application of a physical demands approach may involve the participation of many people.

a. The Employment Service interviewer

(1) Appraises the physical capacities of and desirable working conditions for the handicapped applicant, basing such appraisal on reports secured from doctors when these are necessary and available.

(2) Gives proper emphasis in the order taking process to securing the pertinent physical activities and working conditions of the job opening.

(3) Matches the physical capacity information concerning the applicant with physical demands information on specific jobs, taking into account at all times the applicant's other qualifications such as training, experience, skills, education, interests, personality, and the like.

(4) May prepare physical demands schedules on jobs for which studies have not been made by job analysts; may supplement physical demands information on prepared composite job schedules which do not adequately cover the job as found in the locality.

(5) Promotes utilization of handicapped workers among employers by explanation and interpretation of the physical demands approach.

(6) May introduce the physical capacities report as a means of securing information concerning the applicant's physical capacity from doctors and cooperating agencies able to supply this information.

b. The State consultant for the handicapped, through arrangement with or in company with the employer relations representative, may contact the major employers in the State to promote placement of handicapped workers through the physical demands approach; in some instances may assist employers to install physical demands analysis by helping to train the employer's analysts, personnel workers or foremen; contacts medical associations and cooperating agencies to explain the use of physical capacities reports in lieu of medical diagnosis in placement of the handicapped.

c. The job analyst prepares physical demands information on jobs either as part of a complete job analysis or independently as the need arises.

d. In industry, the company doctor summarizes the physical examination of the job seeker in physical capacity appraisal form and the company personnel officer uses the information to place the worker selectively. As more companies use the physical demands information in this way—as a selection rather than a rejection device—the greater will be the opportunities for people once considered negatively as the handicapped.

e. In private medical practice, doctors may be called upon to fill out physical capacities reports after examining patients, as an aid to public employment workers in Selective Placement.

6. ***Procedures for the Physical Demands Approach***

Specific information on how to make a physical demands analysis of a job is contained in Part III of this handbook. The instructions should be read

carefully at this point. The interviewer will familiarize himself thoroughly with the definitions.

In order to secure an appraisal of the physical capacity of applicants for whom no report is secured from a medical source, interviewers will have to be familiar with the material contained in Part II, "Specific Disabilities and Their Evaluation." It should be noted that when an interviewer does secure an appraisal from an applicant's knowledge of his capacities, a separate form need not be filled out. The listed items on the interviewer's Guide (p. 22) should be used as a check-list and comments emphasizing remaining capacities should be entered directly on the application record. The securing of a physical capacity report from medical sources is described in the section on application.

It should be noted at this point that the specific items contained in the physical demands and the physical capacities schedules are not in final form. Only continued experience can show which items occur often enough to warrant retention in the schedules and which items have relatively less significance and so may be deleted. Consequently, while the principles of the physical demands approach will remain the same, specific changes in schedule items should be expected from time to time. Many problems remain which can be solved only through extensive research on the part of physicians, job analysts, and placement workers.

C. *Interpretation Aspect of the Selective Placement Program*

Since a good deal of employer resistance to the hiring of handicapped workers is conditioned by the prevailing State laws on workmen's compensation, an important function within the Selective Placement program is the interpretation of these laws to employers so that the handicapped are not erroneously rejected for suitable employment. For specific details concerning workmen's compensation see the section called "Summary of Laws Affecting the Handicapped," and the discussion of compensation laws in the section on the "Placement Process."

D. *Cooperation With Other Agencies*

Many handicapped applicants may be capable of more skilled work than they have done in the past. Others may lack any skill and require initial training, and some handicapped applicants may increase their earning capacity if medical treatment, surgical appliances, or similar services are used to reduce the handicap. Some need physical evaluation through medical examination before placement is made. Still others may be so handicapped that they need sheltered employment or other services not related to placement.

The Employment Service works cooperatively with other agencies in the community, notably the State vocational rehabilitation agencies, by sending applicants to them who require services not provided for by the Employment Service. For details concerning these relationships see pages 33 to 39.

E. *Who Participates in the Selective Placement Program*

While material in item C–5 above indicates who participates in physical demands analysis, a word is needed here to include other staff members who have equally vital roles in executing the other phases of the Selective Placement program. It is a fundamental principle that the program will succeed only to the extent that *all* staff, both administrative and operating, are interested and participate in the program. As has been indicated elsewhere (p. 4), top administration can help in such ways as securing the cooperation of national, regional, and area management-labor committees on promotion of the utilization of handicapped workers. At local levels the extent to which supervisors perform the following functions indicate the degree of success to be expected:

1. Conduct formal and/or on-the-job training on the problems involved

in placing the handicapped, and methods of solution.
2. Discuss with the interviewer the qualifications of specific handicapped applicants in the occupational field covered by the interviewer.
3. Cite in training classes, conferences, etc., cases in which handicapped applicants have been successfully placed.
4. Insist upon complete recording on the application cards of information about the applicant's qualifications and work capacities.
5. Make a periodic review of applications and order cards to determine if referrals of handicapped workers are being made and if they are being referred to suitable jobs, or to appropriate agencies.
6. Study statistics on the placement of handicapped applicants to determine the extent to which the handicapped are being placed, which interviewers are making referrals and placements and the kinds of jobs in which the applicants are being placed.

III. THE APPLICATION PROCESS

A. *Recognizing the Handicap*

Staff members will have no difficulty recognizing handicaps such as marked lameness, total blindness, and the like. There are a number of indications of possible disability which may aid in uncovering other disabilities which should be considered in placement. Following are some specific suggestions:

1. In inquiring concerning the applicant's physical condition, the interviewer may ask, "Is there any work you cannot do because of your physical condition?"; "Could you pass a very rigid physical examination?" The interviewer is interested primarily in disabilities of a permanent nature which must be considered in placement.
2. Applicants classified IV–F by Selective Service or applicants who were rejected for jobs through physical examination should be questioned to determine whether a handicap requiring Selective Placement exists.
3. If the applicant indicates that he has been referred to the office by a health or welfare agency, the interviewer may question the applicant concerning the reason for his contact with that agency.
4. The applicant may indicate attendance at some special class, school or institution, such as sight conservation, class for lip-reading, speech correction, ungraded, etc. In such instances the reason for attendance should be discovered.
5. If the applicant was substantially older than the average at the time he graduated from elementary school or if grades were repeated in school, it might indicate that time was lost because of illness or mental deficiency or both.
6. In dealing with a young applicant, a physical handicap may be revealed by questions concerning his participation in sports. If the applicant had no athletic interests in school, or had limited gym classes, a physical limitation may have been the reason.
7. If an applicant states that he left a job because the work was too heavy or because of absences due to illness, the interviewer should determine whether or not there is a physical disability to be considered in placement.
8. If an applicant has been unemployed for an unusually long period of time or has changed jobs very often, the presence of a disability may be indicated, provided the unemployment or changing of employment cannot be explained through other causes.

9. If an applicant refuses some particular kind of work or expresses a definite preference, the existence of some handicap may be indicated. A request for occupational reclassification may also be due to a handicap.
10. Persons working below apparent intellectual capacity may be doing so because of a handicap, such as arrested pulmonary TB, hearing impairment, etc., or mental disorder.

The following list is an aid to securing uniformity in serving the handicapped. The starred items represent disabilities which will usually be considered a handicap. The nonstarred items represent conditions which *may* be considered a handicap if they meet one of the five conditions set forth in section I A 1.

Arm, hand, finger

*01 Arm, amputation, congenital absence, or impairment of functions of one arm (either at, above, or below elbow).
*02 Both arms, amputation, congenital absence, or impairment of functions.
*03 Finger disabilities; amputation, congenital absence, or disablement of one thumb and/or three or four of the remaining fingers.
04 Finger disabilities; amputation, congenital absence, or disablement of one or more but less than three fingers or parts thereof.

Eye

*10 Total blindness in one eye. Vision normal with or without correction in the other.
*11 Defective vision (20/70 up to, but not including, 20/200 in the better eye with correction; vision normal with correction from 20/200 or worse).
*12 Blind as determined by the State vocational rehabilitation agency serving the blind.
13 Eye conditions not affecting visual acuity (ptosis, chronic conjunctivitis, etc.).

Hearing

*20 Hard of hearing (partial loss of hearing).
*21 Deaf (total loss of hearing before speech was learned—include oralists and those depending on sign language).
*22 Deafened (total loss of hearing *after* speech has been learned).

Heart and blood

*30 Heart disease.
*31 Arteriosclerosis (hardening of the arteries); high-blood pressure.
33 Varicose veins.
34 Other vascular disabilities (thromboangiitis without amputations, phlebitis, etc.).
35 Miscellaneous blood diseases (leukemia, hemophilia, venereal diseases, etc.).

Leg, foot

*40 Amputation or congenital absence of a leg at or above knee (fitted with artificial leg).
*41 Amputation or congenital absence of a leg below the knee (fitted with artificial leg or foot).
*42 Disablement of both legs, with *no* crutches.
*43 Leg disabilities or amputations *with* crutches used.
44 Disablement of one leg or any part of it.
*45 Amputations without artificial leg or crutches.
46 Amputation below ankle, with artificial foot. (Include toe amputations.)
47 Flat feet or fallen arches.
48 Arm and leg disabilities.

Respiratory

*50 Pulmonary tuberculosis.
*51 Silicosis.
*52 Asthma.
53 Other respiratory diseases.

Speech

60 Speech defects. (Do not include spastics.)

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Spinal disabilities

*70 Spinal curvature or other spinal deformity.
71 Back or spine injury or disease (no deformity).

Miscellaneous disabilities

*79 Cerebral palsy (spasticity, athetosis, Parkinson's disease).
*80 Malaria.
81 Internal disorders (stomach ulcers, diabetes, cancer, kidney diseases, etc.).
82 Hernia.
85 Skin diseases.
86 Facial disfigurement.
87 Glandular disturbances including dwarfs and midgets.
91 Neurological conditions (neuritis, multiple sclerosis, post-encephalitis).
*92 Epilepsy.
93 Psychiatric conditions.
94 Mental retardation.
99 Miscellaneous.

B. *Interviewing the Applicant*

After the existence of a handicap has been discovered, it is essential that the interviewer secure as complete information as possible about the nature and extent of the disability and compensating factors. At the same time, the applicant should recognize that his work qualifications as represented in work experience, education, vocational training, interests, etc., are of major concern to the interviewer and that the handicap is being considered only in relation to his placement possibilities. The applicant should understand the basis upon which the Service makes referrals—ability to perform a job to the employer's satisfaction. Techniques described in the United States Employment Service Manual in the sections concerned with "Employment Counseling in the Public Employment Service" are particularly good for use with handicapped applicants. In addition, the interviewer should not try to approach a handicapped person in any manner different from the nonhandicapped. Usually he has become accustomed to his handicap and is not embarrassed by it. If the interviewer discusses the handicap naturally and frankly, he will be accepted on the same basis as a nurse or doctor. If the interviewer himself is at ease and has no feeling of repugnance or sentimentality concerning the handicap, the applicant will usually be perfectly free in discussing the disability, and he will not hesitate to demonstrate, if asked, that he can perform certain physical activities such as raising his arm overhead or lifting heavy books.

If the applicant is sensitive about his handicap, the job of the interviewer is much harder. He must be considerate without being sentimental and should not draw attention to the handicap more than is necessary. He should be careful to adapt himself to the needs of each case. For example, if an applicant has a speech handicap such as stuttering, it is usually aggravated by nervous tension. During his interview at the employment office he may be under a nervous strain which prevents his appearing to best advantage. Until the applicant is at ease, the interviewer should start with simple questions which can be answered with brief statements rather than through long explanations. The interviewer should not appear impatient or attempt to press him and he will usually find the applicant responding with less difficulty as the interview continues.

Certain applicants may attempt to oversell their qualifications in an effort to overcome the resistance they anticipate due to their handicap. Interviewers must learn to evaluate qualifications carefully in order that referral may be made only to suitable job opportunities. The use of performance tests and oral trade questions will help this process. Although overselling is true of nonhandicapped as well as handicapped individuals, it is more important in dealing with the handicapped because of the many factors which increase their difficulty in securing suitable employment. References from past employers concerning their occupational efficiency, adjustment to other workers and the like, have

proved highly valuable in evaluating the qualifications of handicapped applicants and can also be used effectively in securing placement opportunities with other employers. For specific suggestions for interviewing applicants with emotional handicaps see section IX in Part II.

When an applicant lacks experience or training, or is changing to new work and there is some question of aptitude, it would be desirable to have him tested objectively. In offices where aptitude test batteries are available, these could be used when applicable. Counseling services in which tests are used will also usually be available through the State vocational rehabilitation agency.

Reinterviews with a handicapped person are important in securing greater insight into his attitudes and those social adjustments which might have a bearing on vocational success. When the applicant becomes acquainted with the interviewer he will discuss his own problems more fully. However, care should be taken to distinguish between constructive and unprofitable use of time. An applicant should never be encouraged to visit the office more frequently than is necessary or worth while.

C. *Securing Physical Capacity Information*

Placement of the handicapped depends on knowledge and careful evaluation of the disability to determine its present status and what capacities it leaves undiminished.

Physical capacity information is secured from the State vocational rehabilitation agency, from a doctor who attended him and/or from the applicant. The doctor may be a private practitioner, hospital staff doctor or he may be attached to any other agency cooperating with the employment service, such as Selective Service Boards, the Army and the Navy, Veterans' Administration, etc.

When information regarding the disability is secured from the applicant only, the interviewer uses the Interviewing Guide shown on page — as a checklist for questioning the applicant about those items most closely related to his stated or apparent disability. The interviewer should ask questions about levels of effort so as to arrive at a clear picture of the level of function which the applicant retains. Since questions are about activities and not job duties, the applicant is more likely to give straight answers—a further advantage of the physical demands approach.

When, however, the doctor gives his cant's condition is secured from a doctor, it is desirable that it be in physical capacities terminology. The doctor acquainted with the physical capacity report form can evaluate the applicant very specifically. The standard physical capacities report form is shown on pages 16 to 19.

When, however, the doctor gives his report in technical medical terms only (hereafter, such reports will be referred to as medical reports), it is the function of the interviewer to interpret the information from his own technical knowledge. (See Part II on Specific Disabilities and Their Evaluation.)

D. *Securing Physical Capacities Information from Physicians*

A physical capacity report may be requested for any individual for whom the interviewer thinks it necessary. It is not always necessary to secure a report. There are certain disabilities, however, for which reports are particularly useful:

*Amputations.
Arteriosclerosis.
*Arthritis.
Back injury.
Blindness.
Bronchiectasis.
Bronchitis, chronic.
Cardiac disease.
*Cerebral palsy.
Chronic internal disorders.
Convulsive seizures (epilepsy).
Defective vision (including one eye blindness with no eye removal).
Ear diseases.
Emotional disorders.
Emphysema.

Empyema.
Encephalitis.
Eye disease.
*Hernia.
High-blood pressure.
Malaria.
Multiple sclerosis.
Muscular dystrophy.
*Neuritis.
Osteomyelitis.
*Poliomyelitis.
Pulmonary tuberculosis.
Silicosis.
Skin disease.
*Spinal curvature.
Thromboangiitis.
Tuberculosis of the bone.

*Reports desired only if applicant is under treatment, has had recent treatment, or if the disability is progressive.

Legally, the Employment Service cannot insist upon a report as a prerequisite to referral, nor is it the policy to do so. Thus, should an applicant refuse to secure or permit the securing of a physical capacity report from a doctor, it becomes the responsibility of the interviewer to make as careful an analysis of the applicant as possible and to acquaint the employer with the fact that the applicant is being referred on his own statement of capability rather than on the statement of a doctor.

1. *Procedures for Securing Physical Capacity or Medical Reports*

In each community relationships should be developed with the State vocational rehabilitation agency, local doctors, hospitals, clinics, Selective Service boards or other organizations through which physical capacity reports may be secured. Each agency should be given a specific explanation of the type of information needed by the Employment Service and why it is needed. Usually it is not advisable to ask doctors if a specific occupation is suitable since they may or may not know the duties and activities involved in the occupation. They may, however, be asked to evaluate actual *activities and conditions* which the interviewer points out as characteristic of the applicant's occupation. Definite procedures and forms for sending requests and receiving reports should be arranged with each cooperating agency or organization. The physical capacities form found below incorporates the essence of physical capacities appraisal.

Hospitals or other agencies frequently require the applicant's permission before information will be released. This requirement can be met by using a waiver such as shown on p. 16 which the applicant signs. The waiver accompanies the request for information and may be retained by the hospital or agency as evidence that it released information only with the consent of the applicant.

2. *Revealing Information Secured in Reports*

In the cooperative agreement between the Employment Service and a State vocational rehabilitation agency or other agency, a hospital, or a doctor, there should be a definite statement or understanding as to when the Employment Service may release information secured in a report, to whom it may release it, and under what circumstances. Some organizations do not object to the quoting of pertinent parts of the report to prospective employers or to the transmission of copies by the Employment Service to other agencies which might assist the applicant.

One caution is needed at this point. Interviewers should exercise great discretion in discussing the contents of a report with any applicant. When a physical capacities report has been received, it is acceptable to discuss the activities and working conditions with the applicant. However, when only a diagnosis has been forwarded by the doctor, the interviewer has no sure way of knowing how the doctor has described the condition to the applicant and so will not want to make any statement or comment that might arouse fear. If the applicant specifically re-

quests information on the diagnosis in the report, it might be wise to counter with "What did the doctor tell *you* when you saw him?" If the applicant insists upon an answer, he should be advised that details have not been furnished by the doctor. The applicant for whom work is forbidden may be told the doctor recommends rest and he may be advised to return when the doctor will approve work.

E. *Physical Capacities Report for Use in Securing Information from Physicians*

The physical capacities report shown on the following pages has been designed for the use of doctors, either private physicians, physicians on the staff of hospitals or the State vocational rehabilitation agencies or other agencies, or any other physicians from whom physical capacities information is requested.

The form is made up of two parts: one part which is in effect a letter to the doctor and a separate sheet (printed front and back) which is the capacities report itself. The information on the request to the physician should be filled in by the local office. The entries are self-explanatory.

This part of the form contains the applicant's waiver and can be kept by the physician. The physical capacities report will be returned by the doctor to the local office. The applicant's name and address should be filled in by the local office on the physical capacities report form. Definitions of the terms used in the lists of physical capacities and working conditions appear on the reverse of the request to the physician.

Form USES 546A
(1-45)

WAR MANPOWER COMMISSION

UNITED STATES EMPLOYMENT SERVICE

PHYSICAL CAPACITIES REPORT

Date _____

Dear Sir:

We should appreciate your supplying us the information requested on the attached form so that we may find work for this applicant suited to his or her physical capacity.

_____
(Manager)

_____ _____
(Applicant's name) (Address)

_____
(Birth date)

APPLICANT'S WAIVER FOR RELEASE OF MEDICAL INFORMATION

I HEREBY AUTHORIZE THE ABOVE-NAMED PERSON OR ORGANIZATION TO DISCLOSE TO THE UNITED STATES EMPLOYMENT SERVICE INFORMATION CONCERNING ANY DIAGNOSIS MADE OR CONDITION REVEALED AS A RESULT OF EXAMINATION OR TREATMENT GIVEN ME WHICH IS RELEVANT FOR THE PURPOSES OF EMPLOYMENT. THIS WAIVER IS EFFECTIVE FOR 60 DAYS FROM THE ABOVE DATE UNLESS PREVIOUSLY REVOKED BY WRITTEN NOTICE.

WITNESSED BY _____
(Interviewer)

SIGNED _____
(Applicant)

BUDGET BUREAU NO. 11-R218
APPROVAL EXPIRES 2-28-46

(Front of Letter)

Reverse form USES-546A

DEFINITIONS OF PHYSICAL ACTIVITIES AND WORKING CONDITIONS

Definitions are included below for those items concerning which there might be some question or lack of uniform interpretation. Those items which are self-explanatory are not included.

PHYSICAL ACTIVITIES

BALANCE. Walking, standing, or running on narrow, slippery, or elevated surfaces by maintaining body equilibrium to prevent falling.

CLIMB. Ascending or descending ladders, stairs, scaffolding, ramps, poles, ropes and the like, using the feet and legs or using hands and arms as well.

CRAWL. Moving about on the hands and knees or hands and feet.

KNEEL. Bending the legs at the knees to come to rest on the knee or knees.

TURN. Twisting partly around from a stationary standing or sitting position usually involving the spine, trunk, neck, and legs.

STOOP. Bending the body downward and forward by bending the spine at the waist.

CROUCH. Bending the body downward and forward by bending the legs and spine.

REACH. Extending the hands and arms in any direction.

LIFT. Raising or lowering an object from one level to another; includes upward pulling.

CARRY. Transporting an object, usually by holding it in the hands and arms.

THROW. Propelling an object through space by swinging motion of the hand and arm with or without the use of tongs or other devices.

PUSH. Exerting force upon an object so that the object moves away from the force, including slapping, striking, kicking, and treadle actions.

PULL. Exerting force upon an object so that the object moves toward the force, including jerking.

HANDLE. Seizing, holding, grasping, turning or otherwise working with the hand or hands, not to be confused with Fingering.

FINGER. Picking, pinching or otherwise working with the fingers primarily (rather than with the whole hand or arm as in Handling).

FEEL. Perceiving such attributes of objects as size, shape, temperature or texture, by means of receptors in the skin, typically those of the finger tips.

COLOR VISION. Perceiving the color of objects by sight.

DEPTH PERCEPTION. Perceiving relative or absolute distances of an object from the observer or from one object to another.

WORKING SPEED. The rate of speed the job requires of the worker. This item should be indicated only where a significantly high rate of working speed would be a consideration in connection with the disability.

WORKING CONDITIONS

INSIDE. Indoor protection from weather conditions.

OUTSIDE. Out of doors, or under an overhead covering with slight protection from the weather.

HIGH TEMPERATURE. Temperature sufficiently high to cause perceptible bodily discomfort, when high temperature would aggravate the disability.

LOW TEMPERATURE. Temperature sufficiently low to cause perceptible bodily discomfort, when low temperature would aggravate the disability.

SUDDEN TEMPERATURE CHANGES. Variations in temperature which are sufficiently marked and abrupt to cause perceptible bodily reactions, when such changes would aggravate the disability.

HUMID. Atmospheric condition with moisture content sufficiently high to cause perceptible bodily discomfort, when humidity would aggravate the disability.

DRY. Atmospheric condition with moisture content sufficiently low to cause perceptible bodily discomfort, when dryness would aggravate the disability.

WET. Contact with water or other liquids.

DUSTY. Air filled with small particles of any kind such as textile dust, flour, wood, leather, feathers, etc., and inorganic dust, including silica and asbestos, to which the individual is exposed.

DIRTY. Contact with or exposure to dirt, litter, soiled materials, etc.

ODORS. Perceptible smells, either toxic or nontoxic.

NOISY. Sufficient sound to cause thought distraction or possible injury to the sense of hearing.

ADEQUATE LIGHTING. When it is imperative for the worker to have adequate lighting, a comment should be made to that effect under "Details of Limitations for Specific Working Conditions."

ADEQUATE VENTILATION. When it is imperative for the worker to have adequate ventilation, a comment should be made to that effect under "Details of Limitations for Specific Working Conditions."

VIBRATION. Production of an oscillating or quivering movement of the body or strain on the muscles, particularly of the legs and arms, as from repeated motion, pressure or shock.

MECHANICAL HAZARDS. Exposure to materials or mechanical parts involving the risk of bodily injury, where such exposure would be dangerous for a particular individual on account of the nature of his disability.

MOVING OBJECTS. Exposure to moving equipment and objects such as overhead cranes, hand and motor driven vehicles, falling objects, etc. which involve the risk of bodily injury, also the act of operating such equipment where such exposure or action might be injurious to a particular individual on account of his disability.

CRAMPED QUARTERS. Workplace where freedom of movement is restricted or where worker cannot maintain an upright position.

HIGH PLACES. Workplace at an elevation above the floor or ground level from which it is possible to fall and be injured.

EXPOSURE TO BURNS. Workplace involving the risk of being burned from hot materials, fire or chemical agents.

ELECTRICAL HAZARDS. Exposure to high-tension wires, transformers, busbars, or other uninsulated or unshielded electrical equipment which involves the risk of electric shock.

EXPLOSIVES. Exposure to explosive gases, vapors, dusts, liquids, and other substances.

RADIANT ENERGY. Exposure to radio-active substances (radium, uranium, thorium, etc.) X-rays, ultra-violet rays or infra-red rays, which would aggravate the disability.

TOXIC CONDITIONS. Exposure to toxic dusts, fumes, gases, vapors, mists or liquids which cause general or localized disabling conditions as a result of inhalation or action on the skin. Specific limitations should be described under "Details of Limitations for Specific Working Conditions."

WORKING WITH OTHERS. Requiring occupational cooperation with fellow workers or direct contact with the public.

WORKING AROUND OTHERS. Requiring independent occupational effort but in proximity to fellow workers or the public.

WORKING ALONE. Requiring independent occupational effort and virtually no contact with fellow workers or the public. Limitations in connection with any of the last three items to be further described under "Details of Limitations for Specific Working Conditions."

Form USES-546
(1-45)

PHYSICAL CAPACITIES REPORT

NAME OF APPLICANT _____ ADDRESS _____

NATURE OF DISABILITY _____

_____ PROGNOSIS _____
(Date of last examination)

PLEASE INDICATE THIS APPLICANT'S PHYSICAL CAPACITY AS FOLLOWS:

LEAVE BLANK ANY ITEM FOR WHICH HIS CAPACITY IS NORMAL.
CHECK THE NO COLUMN FOR EACH ACTIVITY THAT IS FORBIDDEN.
CHECK THE LIMITED COLUMN FOR ITEMS FOR WHICH HIS CAPACITY IS LIMITED. IF LIMITATION IS ASCERTAINABLE, DESCRIBE ON REVERSE OF THIS FORM.

PHYSICAL ACTIVITIES	NO	LIMITED	WORKING CONDITIONS	NO	LIMITED
WALK			INSIDE		
JUMP			OUTSIDE		
RUN			HIGH TEMPERATURE		
BALANCE			LOW TEMPERATURE		
CLIMB			SUDDEN TEMP. CHANGES		
CRAWL, KNEEL			HUMID		
STAND			DRY		
TURN			WET		
STOOP, CROUCH			DUSTY		
SIT			DIRTY		
REACH			ODORS		
LIFT, CARRY			NOISY		
THROW			ADEQUATE LIGHTING		
PUSH, PULL			ADEQUATE VENTILATION		
HANDLE			VIBRATIONS		
FINGER			MECHANICAL HAZARDS		
FEEL			MOVING OBJECTS		
TALK			CRAMPED QUARTERS		
HEAR			HIGH PLACES		
SEE			EXPOSURE TO BURNS		
COLOR VISION			ELECTRICAL HAZARDS		
DEPTH PERCEPTION			EXPLOSIVES		
WORKING SPEED			RADIANT ENERGY		
			TOXIC CONDITIONS		
			WORKING WITH OTHERS		
			WORKING AROUND OTHERS		
			WORKING ALONE		

1. IF CARDIAC DISABILITY, PLEASE GIVE AMERICAN HEART ASSOCIATION CLASSIFICATION _____, OTHERWISE STATE RECOMMENDATIONS UNDER "REMARKS."

2. IF TBc, SPECIFY: APPARENTLY CURED ☐ ARRESTED ☐
APPARENTLY ARRESTED ☐ QUIESCENT ☐
SPUTUM: + ☐ − ☐ AS OF_____ MAY WORK _____ HRS/DAY
(Date)
_____ DAYS/WK.

3. IF NEURO-PSYCHIATRIC, INCLUDE ANY INFORMATION ON ASSETS OF APPLICANT AND WORK LIMITATIONS

4. ALLERGENS TO AVOID_____

(Front of Report)

Reverse of Form USES-546

DETAILS OF LIMITATIONS FOR SPECIFIC PHYSICAL ACTIVITIES:

DETAILS OF LIMITATIONS FOR SPECIFIC WORKING CONDITIONS:

REMARKS:

SIGNED _____ M. D

TEL. NO. _____

BUDGET BUREAU NO. 11-R218
APPROVAL EXPIRES 2-28-46

WAR MANPOWER COMMISSION
UNITED STATES EMPLOYMENT SERVICE

(Back of Report)

F. *Information Secured by the Interviewer*

When the interviewer secures information from the applicant only, or from a medical report which has not been made in terms of physical capacities, he uses the Interviewing Guide, shown below, as a checklist for determining that the necessary information concerning the handicap is secured. The information given in Part II of this handbook will also be used in connection with the evaluation of specific disabilities.

The limitations must be translated into terms of the specific physical activities in which the applicant's capacity is limited or which he cannot or should not perform. Emphasis should also be placed on the physical activities the individual can perform in cases where unusual adjustments have been made to a handicap. In addition other information pertinent to the disability must be secured, such as the date of incurrence of the disability; the cause of the disability, if pertinent; the adaptation the applicant has made, for example, whether the applicant uses prosthetic appliances, and the adaptation to them; information concerning services that must be obtained before placement can be made, etc.

An indication should be made on the application card as to whether the information was secured from the applicant, from a physician's physical capacities report, from a medical report not furnished in terms of physical capacities, or from a combination of these sources. The interviewer has been cautioned above concerning the revealing of medical information to the applicant if it appears the doctor may not already have given the individual the information. A word of caution should also be given to the interviewer relative to his use of the medical information supplied by the doctor in using it to determine physical capacities and suitable working conditions. In addition to using the suggestions for evaluation of specific disabilities given in Part II of the handbook, the interviewer should also, of course, question the applicant concerning the disability and the physical capacities and working conditions which are suitable. The applicant is usually well aware of his limitations; in many cases, moreover, he can supply information which the doctor has given to him concerning activities to avoid, the length of time he should work, and other pertinent information.

In questioning the applicant, it may be well to determine whether the information is that which has been given to him by a physician, or whether it is the applicant's own appraisal of his abilities. *In no case should the applicant's own statement of his disability, limitations or capacities be minimized.* If it appears, however, that the applicant has a disability, such as a cardiac ailment, which might be the source of injury to the applicant unless specific information for Selective Placement is secured, the applicant might be requested to secure a physical capacities report. Section III D indicates the cases in which the applicant should be requested to secure a physical capacity report. The interviewer must not attempt to appraise the applicant's disability. He must utilize information furnished by the applicant, or by the physician or medical officer.

G. *Recording the Information*

It is important that information and recommendations concerning the applicant be carefully recorded in order that maximum use may be made of the data that have been secured and evaluated, often through much effort and time.

In general, information concerning the handicapped applicant should be recorded on the Application Card (USES-511) in a manner similar to the posting of information for the non-handicapped. (See USES Manual, Section on The Application Process, "Recording Information on the Application Card.") Complete and accurate information on the applicant's handicap is especially essential because such data are frequently technical and the extent to which the handicap is described may influence the individual's job objective. The amount of data recorded

will, of course, vary with the individual case.

The Interviewing Guide will be utilized as a checklist in making sure that each item of information relating specifically to the handicap is secured. The presence of a disability should be recorded as a code number on the front of the application card under "Describe Any Disability," and details and description of the disability (including the physical capacities and working conditions information) should be recorded on the back of the card under "Special Information." Under "Special Information" it should be indicated whether the information was secured from a physician's physical capacities report, a physician's medical report (not interms of physical capacities), from the applicant, or from a combination of these sources. The code number next to each disability listed on pages 11 to 12 should be inserted as the only entry on the front of the card under "Describe Any Disability." Information relative to referrals made to other agencies, for example, the State vocational rehabilitation agency, follow-up information, etc., should be recorded in the "Comments" section of the card.

H. *Guide for Interviewing Handicapped Applicants*

HANDICAPPED APPLICANTS, GUIDE FOR INTERVIEWING

GUIDE FOR INTERVIEWING HANDICAPPED APPLICANTS

INDICATE:

1. **NAME OF THE DISABILITY**
   (Except for emotional handicaps, mental retardation, or venereal diseases.)
2. **DATE OF INCURRENCE OF THE HANDICAP** (APPROXIMATE)
3. **CAUSE OF THE DISAPILITY** (IF PERTINENT)
4. **WHETHER CONDITION IS PROGRESSIVE**
5. **APPRAISAL OF PHYSICAL CAPACITY**

Describe specific extent of limitation in relation to items such as the following:

PHYSICAL ACTIVITIES

1. Walking	10. Crouching	19. Handling
2. Jumping	11. Kneeling	20. Fingering
3. Running	12. Sitting	21. Feeling
4. Balancing	13. Reaching	22. Talking
5. Climbing	14. Lifting	23. Hearing
6. Crawling	15. Carrying	24. Seeing
7. Standing	16. Throwing	25. Color vision
8. Turning	17. Pushing	26. Depth perception
9. Stooping	18. Pulling	27. Working speed

WORKING CONDITIONS

51. Inside	60. Dirty	69. High places
52. Outside	61. Odors	70. Exposure to burns
53. Hot	62. Noisy	71. Electrical hazards
54. Cold	63. Adequate lighting	72. Explosives
55. Sudden temp. changes	64. Adequate ventilation	73. Radiant energy
56. Humid	65. Vibration	74. Toxic conditions
57. Dry	66. Mechanical hazards	75. Working with others
58. Wet	67. Moving objects	76. Working around others
59. Dusty	68. Cramped quarters	77. Working alone

6. **ADJUSTMENTS TO DISABILITY,** SUCH AS:
   - A. USE OF PROSTHETIC APPLIANCES
   - B. COMPENSATORY ACCOMPLISHMENTS
   - C. ATTITUDE TOWARD DISABILITY

7. **PRE-EMPLOYMENT SERVICES NEEDED,** SUCH AS:
   - A. PROSTHETIC APPLIANCES OR MEDICAL SERVICES
   - B. VOCATIONAL TRAINING
   - C. FINANCIAL ASSISTANCE
   - D. LICENSES, TOOLS, OR EQUIPMENT
   - E. ARRANGEMENTS FOR TRANSPORTATION

Form USES-545
(1-45)

WAR MANPOWER COMMISSION
UNITED STATES EMPLOYMENT SERVICE

I. *Evaluating*

1. *The Individual Approach*

It should be emphasized here that, since handicapped persons differ widely in potential ability and since the same disability may affect different persons in different ways, the skills and abilities of the handicapped workers must be evaluated on an individual basis. Translated in placement, this means that every effort is made to fit remaining skills—actual and potential—into the most suitable group of occupations.

2. *Utilizing Previous Experience*

One of the most important principles in assisting in the selection of a suitable classification is to capitalize upon the previous experience of the handicapped applicant by returning him, if possible, to the occupation followed prior to the disability. For example, a stenographer whose legs become disabled may still be able to perform stenographic work efficiently. In cases where the recent job is no longer suitable, an applicant may have done some kind of work several years back which can be the basis of a new employment plan through the medium of an additional classification. Work history should be studied carefully to determine if there are elements of previous jobs which are related to jobs that the individual could now fill. Job family material can be particularly helpful in analyzing experience accumulated previously and relating to occupations with physical demands of a different nature. The following example illustrates the importance of complete information as well as resourcefulness on the part of the Employment Service interviewer.

> An applicant who had been employed for 12 years as manager of a large chain of meat market sustained an injury to his back which prevented him from continuing this work which required traveling from place to place. When an analysis was made of exactly what he did as manager of the shops, it was discovered that part of his responsibility had been training the cashiers in the various markets. As a result, he was placed with a large metropolitan restaurant where all of his duties could be performed in one place. He was chief cashier and assistant to the manager. His duties included assisting with the meat purchases.

The applicant's knowledge of a particular industry or process may be related to another occupation in the same industry if he is unable to return to his former occupation. For example, a machinist may become a tool inspector after a leg injury if that injury incapacitates him for the machinist trade.

3. *Broad Groupings*

On the basis of information gathered, the applicant will fall into one of the following groups:

a. The physical or emotional condition constitutes no handicap.
b. Handicapped and employable with current skill; may be able to benefit by supplementary training.
c. Handicapped but requires training or other preparation before placement.
d. Handicapped and unable to compete in labor market.

4. *Classification of the Handicapped Applicant*

After discovering the broad fields in which the applicant's skills and potentialities are greatest, the interviewer will aid the applicant in determining an occupation or occupations in those fields where the loss or impairment of certain functions will not limit his performance. This will involve the selection and assignment of occupational classifications which will make the applicant readily available for selection and referral to suitable jobs. Classifications will be assigned according to the same principles used for any applicant; i. e., on the basis of the applicant's work experience, training, inter-

ests, special abilities, and physical capacities.

Obviously, the applicant able to continue with his regular line of work is coded for such work. Presumably he has to be considered handicapped, not because he has to change his occupation but due to any one of the other factors which make up the definition for handicaps.

When, however, the applicant is no longer able to perform his usual occupation because of a handicap, a more difficult problem is presented. The interviewer will first attempt to determine through the use of job families and other suitable aids, whether any occupations related to the applicant's former work are suitable. Where the applicant's former occupation is represented by a code which encompasses many other occupations, the code of the former occupation should be assigned. Suppose, for example, a tool maker, through a newly acquired disability, such as loss of the left arm below the elbow, is no longer able to perform *all* the tasks usually required in his job. The tool maker job has so many related occupations that it is wiser to assign the tool maker code than to attempt to assign an exhaustive list of codes for all the related occupations which the applicant is still able to perform.

It is not always desirable, however, to assign the code of a former occupation. A relatively simple example of the use of related classifications, and yet one encountered quite frequently, is that of the dictaphone operator who becomes deafened and so is no longer able to use the dictaphone machine. Because the classification for dictaphone operator does not include many related occupations which the applicant can still perform, this applicant should be assigned a classification for typist since this skill does not require the use of hearing.

In some instances the former occupation is totally unproductive of clues for classification. It is obvious, for example, that a man who has been a log driver and suffered an amputation just below the left hip will no longer be able to engage in any phase of that work. A search of occupational information materials (Job Families I–49 and I–55, Log and Sawmill Industries) will reveal no titles of related jobs which he can perform. In cases like this, a thorough exploration must be made of the applicant's skills in other types of jobs and potential abilities which he may not have had an opportunity to exercise in any past employment in order to assign a suitable primary and/or entry code.

The active participation of the applicant should be enlisted in the development of his occupational classification. Disabled persons often lean heavily upon the interviewer in the selection of a job plan and suitable additional classifications. They may distrust the classifications that have been selected unless they understand the reasons for such a choice and, in fact, have had a part in arriving at it. The function of the interviewer is to join with the applicant in making a careful appraisal of his capacities and limitations that are in keeping with the qualifications and the physical ability of the applicant.

IV. THE PLACEMENT PROCESS

A. *Knowing the Job*

The interviewer will use all the tools and information at his command to know the character of the job to which he wishes to refer the handicapped applicant. One source of information will be his own personal observation gained through field visits or even from his own past experience. But it is not humanly possible for an interviewer to know every job through

first-hand observation and experience. He will learn from applicants and employers what particular conditions exist in a given shop, what are the deviations in the way the work is performed. He will rely more heavily, however, on technical aids developed by experts. Such aids are:

1. *Physical Demands Studies*

The interviewer in the local office may make the physical demands studies himself to determine what jobs are suitable for his applicants. Even when composite physical demands studies are available, the interviewer will still need the technique (*a*) in order to evaluate activities or conditions that may be different in firms in his community and (*b*) in order to analyze a job even more closely than was done by the job analyst. For example, the job analyst may note that a BENDER, HAND (III) fingers and handles paper box blanks to fold them along scored lines. The interviewer may have to analyze in more detail to see whether an applicant who has lost the thumb on his right hand can still perform this operation. As was indicated in the sections devoted to specific disabilities, in addition to the general requirements of the job, consideration must be given in many cases to secondary but equally important physical demands and conditions such as: number of flights of stairs to be climbed to reach the job location, hours of traveling needed to reach job, whether traveling is by congested means of transportation, type of neighborhood in which job is located and the like.

2. *Other Aids*

a. Job Families

A job family is a group of related occupations which require the same or similar abilities and knowledge of workers. At present there are three series of job families issued nationally and designed to transfer workers on the basis of skills and abilities developed by previous work experience: Industrial ("I" Series), Occupational ("O" Series), and Army ("A" Series).

b. Job Descriptions

These are issued nationally and then applied locally by job analysis studies. The newer releases include specific sections on physical demands and working conditions.

c. The Dictionary of Occupational Titles

Part I of the Dictionary lists and defines jobs on the basis of the job analysis formula which explains *what* the worker does; *how* he does it; and what *skills, knowledge, or abilities are involved* in doing it. The definitions in the Dictionary sometimes permit of fair deductions as to the probable physical demands of a job.

d. Special Aids for Placing Military Personnel in Civilian Jobs

These include Special Aids for Placing Navy Personnel in Civilian Jobs and Special Aids for Placing Army Personnel in Civilian Jobs. Under each Army or Navy occupation (such as MOLDER, FIRST CLASS, CARPENTER'S MATE, SECOND CLASS) are listed the related civilian occupations, with notes on the training required, and, in addition, the *physical activities and working conditions* inherent in the jobs.

e. Oral Trade Questions

While these are used chiefly to gain an insight into an applicant's knowledge of a job, the questions and answers developed for each job aid in broadening the interviewer's knowledge of the occupation.

f. Lists of Jobs Suitable for the Handicapped

Releases have been issued from time to time which group jobs suitable for persons with certain specific disabilities. Such releases are no longer being prepared because of the shortcomings of such lists, which have

been discussed in Section II, page 6. Consequently, lists now in use in Employment Service offices should be used only for leads for suggesting jobs which might be suitable. When a particular job is considered for an applicant, the physical activities and working conditions of the job should be analyzed in detail to insure that it meets the applicant's capacity. Further, an applicant should not be denied consideration for a job that he desires simply because it does not appear on the list of those suitable for persons with his type of handicap.

B. *Matching the Applicant and the Job*

Section III, "The Application Process," has summarized methods whereby the interviewer learns the applicant's qualifications, particularly his physical capacity for work. Part A in section IV has highlighted the tools and the techniques for securing information about jobs. The skill with which the interviewer then matches the qualifications of the handicapped applicant and the requirements of the job largely determines the success or failure of the subsequent referral he makes. The matching process is not a purely mechanical one. Imagination and alertness to new possibilities are required of interviewers. Suppose, for example, there is an opening for a METAL PARTS POLISHER, and in the plant giving the order the machine is so placed that the operator must stand. The applicant who seems to meet all the occupational qualifications, however, has a high leg amputation, no artificial leg and uses only one crutch to get about because his shoulders and other leg are so strong that he can use one crutch very agilely. This applicant should not be denied consideration for this job. If it is not feasible for the employer to lower the setting of the machine so that the operator can sit, then possibly an extension similar to a table leaf may be added to the machine. The one-legged man can then stand on the good leg, and on the stump by resting it on the extension. As a matter of fact, this is exactly how one such man who dislikes sitting all the time, is working today.

When a report is requested from a doctor concerning the physical capacities of an applicant, every effort should be made to secure the report within a day or two of the applicant's initial contact with the employment office. When it seems likely, however, that several days will elapse, the applicant may be considered for and referred to immediate job openings provided that

1. The prospective employer gives a preemployment physical examination, or
2. The prospective job is carefully selected to avoid the activities or working conditions usually deemed undesirable for the disability specified by the applicant, and the applicant and employer advised of the fact that information from the doctor is not immediately available.

In the event that the report indicates the unsuitability of the job, the employer and applicant should be so advised.

C. *Techniques for Referring the Handicapped Applicant to a Specific Job Opening*

Selection for all jobs is done on the basis of qualifications of the applicant. The handicapped applicant is considered along with all other applicants qualified. Consequently, current job openings are the chief source of positions suitable for the handicapped. When the employment office placement interviewer is convinced that a certain handicapped applicant is qualified for a certain job opening, he is justified in making a special effort to secure an opportunity for the applicant to demonstrate his ability by using techniques such as the following:

1. The interviewer never mentions the handicap first, as "I've got a one-

armed man here, but he can do the work"; rather, he *stresses the man's assets*, pointing out the way the applicant can meet each requirement, thus building up in the employer a desire to hire the man. Then he can mention the limitation casually, adding that an analysis has demonstrated it does not hinder the applicant's performance on the job.

2. The interviewer uses a specific name for the disability such as "lame" or "hard of hearing" rather than a general term like "handicapped," "disabled," or a "limited person," since the specific term does not produce a mental image of a person with a more serious handicap than that of the applicant and is less likely to arouse prejudice against him.
3. Advantages in the employment of workers with *certain types* of handicaps for specific jobs is stressed; i. e., certain deaf workers may prove more efficient under noisy working conditions than persons with normal hearing.
4. The use of references from previous employers often is helpful because they cite specific examples of successful performance.
5. Employer confidence is developed by *referring only suitable applicants*, whether handicapped or nonhandicapped. If this is done, the employer is more likely to accept the recommendations of the interviewer.

D. *Information for Selling the Handicapped to Employers*

If objection should be raised by the employer or resistance evidenced to the hiring of a handicapped applicant, considerable information is available to meet any of such objections.

1. *Referral on the Basis of Qualifications Through the Physical Demands Approach*

One of the basic principles of the Employment Service is the referral of applicants to job openings on the basis of qualification. Employers can appreciate this principle when they understand how the job analysis technique enables interviewers to determine job requirements, evaluate applicant qualifications, and match the applicant and the job accordingly. While this has been pointed out before, it is emphasized here to show that employers who are asked to hire handicapped workers should be acquainted with the physical demands approach which proves the ability of *particular* handicapped individuals to perform *specific jobs*. All of the material already presented in this handbook can show the employer how the *selective* approach applies in initial placement, job adjustment, any subsequent transfer, training, good methods of supervision, and administrative evaluation.

Closely related to the use of a physical demands approach is the question of physical examination. All too frequently employers have a single standard physical examination for all of the jobs within the plant. The X Y Z Co., for example, with 235 different occupations, gives a standard physical examination to all job seekers and requires that everyone employed by the company must have at least 20/50 vision with best correction. Obviously, not everyone of the 235 jobs requires such visual acuity. If this company used the physical demands approach, a physical examination would not rule out applicants with vision not up to 20/50, but it would permit placing of such workers in jobs not requiring such acuity.

2. *Job Stability of the Handicapped*

The following chart compiled by the United States Office of Education, Vocational Rehabilitation Division, summarizes reports secured in 1943 from 105 employers on the efficiency of physically handicapped employees in comparison with able-bodied employees.

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Efficiency of physically handicapped employees in comparison with able-bodied employees

Measure of efficiency	Employing establishments reporting	
	Number	Percent
Production of the handicapped:		
Above that of the able-bodied	25	23.8
Same as that of the able-bodied	69	65.7
Below that of the able-bodied	11	10.5
Total employers reporting	105	100.0
Absenteeism of the handicapped:		
Less than that of the able-bodied	53	54.6
Same as that of the able-bodied	39	40.2
Above that of the able-bodied	5	5.2
Total employers reporting	97	100.0
Labor turn-over of the handicapped:		
Less than that of the able-bodied	63	82.9
Same as that of the able-bodied	12	15.8
Above that of the able-bodied	1	1.3
Total employers reporting	76	100.0
Accident rate of the handicapped:		
Lower than that for the able-bodied	49	56.3
Same as that for the able-bodied	36	41.4
Higher than that for the able-bodied	2	2.3
Total employers reporting	87	100.0

In a recent survey conducted by the Bureau of Labor Statistics on the utilization of physically handicapped workers in manufacturing industries, the information shown on the following chart was secured concerning the comparative performance of physically impaired and unimpaired workers. Physically impaired workers were found to be equally as efficient as their unimpaired fellow workers and superior in respect to absenteeism, injury frequency, and labor turn-over according to the reports by management in 300 establishments.

*Comparative performance of physically impaired and unimpaired workers**

Measure of performance	Percent of impaired workers reported*		
	Better than unimpaired	As good as unimpaired	Poorer than unimpaired
Efficiency on the job	7.8	87.0	5.0
Absenteeism	49.0	43.8	7.2
Injury frequency	51.1	37.7	11.2
Labor turn-over	58.5	30.8	10.7

*Total number of impaired workers reported by each employer as a percentage of the total (63,382) reported by 300 employers.

The Minneapolis Artificial Limb Co. with 145 employees, 95 percent of whom are disabled, reports that these workers have been with the company on an average of 15 years each; work absences caused by the disabilities are practically unknown; labor turnover is negligible; and they have not found it necessary to attach any special devices to machines or to give workers tasks for therapeutic purposes.

The Connecticut Rehabilitation Service, which is cooperating with the National Industrial Conference Board in studying the production rates of handicapped workers, reports that *when handicapped workers are selectively placed* their production is equal to that of the physically normal. They too find absenteeism, in general, far less among the handicapped than among the nonhandicapped. A pioneer study in connection with the employment of handicapped workers was made by the Western Electric Co. in the period from 1929 to 1931. Of the 685 handicapped workers employed during that time, it was found that only 23.5 percent of the handicapped were injured compared to 39.1 percent of the control group of nonhandicapped persons employed during the same period.

More recently, the United States Civil Service Commission in a pamphlet called "Untapped Manpower" states that the physically handicapped are good workers, have fewer accidents, are conscientious, except no favors, and produce as well as or better than the average of normal people.

With the foregoing information, interviewers should be able to prove that the handicapped are not more prone to accidents than the able-bodied, that they produce as well, if not in many cases better, than the able-bodied, and that they stick to the job both from the point of view of regular attendance and minimum turnover. As far as job flexibility is concerned, the question may arise as to whether in slack times the handicapped worker can be shifted as readily to other assignments in a plant

as the nonhandicapped. It should be obvious by now that if *selective* transfer is used there should be little difficulty in determining whether there are other suitable jobs for the worker. If, however, analysis reveals that no other job in the plant has activities and conditions which the worker can meet, then the employer should feel free to let the handicapped worker go as he would any other worker in a similar position.

3. *The Handicapped and Insurance*

a. Workmen's compensation

Workmen's compensation insurance is a means by which employers or their insurance carriers build up a fund against accidents in industry and make payments out of such funds to persons injured in industry. There is nothing in any compensation law which prohibits the employment of handicapped workers. Further, the rate of compensation insurance for any employer is based upon the relation of accident cost to the total pay roll. No information is required concerning the physical condition of the employees and, as we have said above, it is unfair to assume that the handicapped are more accident prone and, therefore, may elevate the accident cost for the company. The Association of Casualty and Surety Executives, consisting of 60 capital stock insurance companies which write a large volume of workmen's compensation insurance on a country-wide basis, has gone on record as follows: "If any impression prevails that companies writing Workmen's Compensation Insurance exercise influence upon employers in the selection of workers and advise employers against the employment of disabled persons (because of the likelihood that employment of the disabled will result in an increase in cost to the employer of Workmen's Compensation Insurance), that erroneous impression should be corrected. It is the policy and practice of the member companies of this Association *not* to advise employers against the employment of disabled persons."

Some employers hesitate to hire partially disabled people, even though they are capable of performing duties of the particular job sought, because a subsequent injury on the job might result in permanent total disability, for all of which in *some* States the employer might be held liable, instead of being liable only for the subsequent disability sustained in his employ. At this point, interviewers should examine the workmen's compensation law of their own State. Where employers are held responsible for all injuries, it must be recognized that it will be more difficult to persuade an employer to hire the handicapped worker, unless he can be convinced that handicapped workers are not particularly subject to subsequent disability. In States where the employer pays only for such subsequent disability, the employer who refuses to recognize that the handicapped are not more accident prone may at least be persuaded to hire the handicapped on the basis that, if subsequent disability should occur, he, the employer, is responsible only for such subsequent disability.

For more detailed information concerning the nature of workmen's compensation laws, see section IX, pages 47 to 49.

b. Sick benefit for group insurance plans

In group life insurance, the rate is based solely upon the age and sex of the people being insured and not upon physical conditions. Thus, companies having sick benefit or group insurance plans should not rule out handicapped workers because of such plans. To do so would be to assume again that the handicapped are more liable to illness, injury, or accident. The Western Electric study, previously referred to, recorded sick leave taken by handicapped and nonhandicapped workers. During the period covered by

the study, it was found that 60 percent of the nonhandicapped were absent while only 53 percent of the handicapped were absent, which certainly gives the handicapped a clear edge in attendance.

4. *The Handicapped in Relation to Fellow Workers and Employers*

Occasionally, handicapped people are not hired, with the explanation that other employees or customers would feel uncomfortable, that they make the firm look like a charity concern, or that they need special attention and expect special advantages and consideration from the employer.

The feeling that other employees or customers are uncomfortable at the sight of handicapped people probably looms larger in theory than in fact. It is an expression of the social attitude which for centuries has denied handicapped persons an equal opportunity to develop and use their full capacities. We are learning today, however, that when the handicapped person has a normal, well-adjusted attitude, most people will become accustomed to him. The sales manager of a very successful New York department store uses a cane because of a limp, and finds no difficulty handling staff or customers. One of the most effective employer relations interviewers in the Employment Service, one who frequently visits employers in their plants, is a man with such severe spinal arthritis that he cannot stand erect, but is bent at about a 75° angle.

As for special advantages and special consideration, it is the exception rather than the rule to find handicapped persons who have not developed self-reliance and who need special supervision in making a vocational adjustment. Most handicapped people recognize their share in developing proper social attitudes by not requesting favors on the job.

Should an employer state that he can only provide for his own employees who become disabled and cannot employ others, he might be reminded that the Employment Service places applicants because they qualify, not because they need charity, and that so long as he has other jobs open for which he is hiring he should, for all the reasons given above, consider any qualified person, including the handicapped.

E. *Promoting Opportunities*

When open orders in the local office do not yield suitable jobs, openings should be developed whenever possible. These efforts should be directed especially toward more seriously disabled individuals.

1. *Chief Sources of Leads*

a. Application cards

Work histories of handicapped applicants will reveal firms which are accustomed to employing qualified handicapped persons.

b. Employer orders

Old closed orders may also constitute a fruitful source of leads.

c. People

People, as well as office records, frequently suggest leads. Applicants and even employers often direct the interviewer to firms that might employ the handicapped. Organizations of people (unions, employer organizations, welfare agencies, special agencies for the deaf, the blind, etc.) may also furnish leads.

d. Advertisements

In times of acute labor shortages, advertisements often appear calling for handicapped persons to apply for jobs. Here caution must be used to ascertain that the employer, in his eagerness to get enough labor, does not misuse the people he gets. The interviewer may refer a husky looking young man with moderate heart trouble to a clerical job represented as inventory clerk. However, when the employer sees the applicant, he may set him to moving stock and loading and unloading material if he

does not understand the applicant's condition.

2. *Methods*

a. Telephone solicitation

The interviewer uses telephone solicitation frequently to solicit job openings for a specific applicant when there is no suitable current opening. This method is more often used to contact employers already known to have hired handicapped people at some time.

b. Promotion letters

Brief promotion letters to prospective employers describing the qualifications of particularly well-qualified applicants have been used effectively in securing job opportunities for the handicapped. Brevity, simplicity, and clarity are the significant factors in letters of this type. Emphasis should always be on work qualifications and experience.

c. Field visits

Direct personal contact by means of a field visit is an excellent means of promotion. The interviewer is prepared to discuss either the handicapped in general, or a specific applicant or group of applicants qualified for the types of jobs known to exist in the firm. An interviewer making initial visits for the handicapped may sometimes find it easier to cite specific applicants as examples.

The explanation of the job analysis technique and the physical demands approach to employers in the course of a visit demonstrates that the Employment Service interviewer knows the requirements for successful job performance and increases the employer's confidence that referrals are made solely on the basis of qualifications.

On page 32 is a chart of an in-plant plan for Selective Placement of disabled workers, which might well serve as a basis for discussion with most large companies.

d. Group activity

In the course of talks to large groups (manufacturers' associations, community organizations, etc.) on the problems of meeting labor needs, for example, the qualifications of the handicapped may be stressed.

e. Demonstrations by the blind.

A special word is needed here on placing the blind. It is frequently desirable to demonstrate to an employer by actual performance that a blind person can master some of the jobs in his shop. An interviewer could arrange with an employer to have a blind person from a cooperating agency (usually its placement specialist) undertake the demonstration. (See also sec. V, p. 53.)

f. Publicity

News releases to papers or magazines, or broadcasts highlighting the employment of handicapped persons in a community may serve to acquaint more employers with the possibility of utilizing this source of labor.

F. *Preparing the Applicant for the Employer Interview*

Assistance to the individual in selling his qualifications to the employer may be necessary for some of the handicapped. No opportunity should be overlooked in building up the applicant's self-reliance and initiative and prevening him from jeopardizing his job opportunities through failure to understand employer attitudes or job requirements, as pointed out in sections dealing with "Employment Counseling in the Public Employment Service" in the United States Employment Service Manual. Specifically, applicants should be cautioned to minimize the appearance of their handicaps as much as possible; to stress their qualifications, not their limitations; to make no appeal to the employer based on need for the job, the difficulty of securing work, or the like; to appear clean and neat; and to present a cheerful disposition.

CHART OF IN-PLANT PLAN
FOR SELECTIVE PLACEMENT OF DISABLED VETERANS

JOB ANALYSIS	CAPACITIES APPRAISAL	SELECTIVE MATCHING	TRAINING	TRANSFER	SUPERVISION	JOB MODIFICATION	FOLLOW-UP	EVALUATION
Analysis of performance requirements of jobs in specific terms—physical demands and working conditions, tasks performed, aptitudes, skills, experience, education, other qualifications required by the job.	Analysis of qualifications of worker, including skill, aptitude, education, experience, personal characteristics and physicial capacities; physical capacities to be appraised in terms comparable to physical demands of the job and suitability of working conditions.	Placement of workers on selective basis matching requirements with qualifications; considering physical capacities in relation to physical demands and working conditions; matching experience, education, aptitudes, skills, in relation to requirements of the job; no deviations from plant standard of job performance.	Training in vocational education, vocational rehabilitation, apprentice, on-the-job, or other methods as required by the individual.	In-plant transfer of workers on same performance standards as original assignment; limitation imposed on transfer from assigned job pending clearance by medical and safety departments.	Participation of supervisory force in physical demands analysis; training of supervisory force in objective attitude toward handicapped and special problems in supervision of certain types of handicapped, e. g., blind, deaf, and emotionally handicapped.	Alteration of machine controls, etc., or duties of the job to be made only if no suitable or safe job available for worker. Same standard to be followed in placement under reengineering as in regular placement.	Follow-up of placement to insure suitability of the occupation and satisfactory progress on the job.	Maintenance of minimum records of experience—accident, absentee, turnover, production for performance evaluation purposes.

Functional Chart
Revised July 24, 1944

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V. PREPARING APPLICANTS FOR EMPLOYMENT

A. *Elements Needed for Maximum Employability*

There are some handicapped applicants who require training or other services before or concurrently with placement. In order to be prepared for the best opportunities, a handicapped applicant should be:

1. *Restored to as Great a Degree of Physical or Emotional Health as Possible*

Physical restoration is the whole or partial correction of a physical disability by medical or surgical care or by prosthetic appliance. A prosthetic appliance is a device to aid, support or replace a sensory function or body part (e. g. hearing aids, spinal braces, artificial limbs). A rope splicer who has lost a leg and uses two crutches would increase his own capacity for getting about and would lower employer resistance if he could adjust to using an artificial leg.

Emotional restoration is the whole or partial correction of an emotional handicap through psychiatry or case work service.

2. *Equipped With Occupational Skills*

A young man has 20/200 vision in both eyes with best correction. He has spent his childhood in hospitals undergoing numerous eye operations and thus has only the equivalent of eighth grade schooling. His aptitudes need to be revealed so that he may master or extend some skills to the maximum extent possible and so develop the maximum earning capacity of which he is capable.

B. *Vocation Rehabilitation Agencies*

There are many agencies which give effect to one or other of the two objectives mentioned. Foremost among the public agencies which fulfill *both* aspects is the state vocational rehabilitation agency, working in cooperation with the Office of Vocational Rehabilitation of the Federal Security Agency.

Under Public Law 113 (July 6, 1943) the Federal and State governments cooperate in a joint program of rehabilitation.

1. *Rehabilitation Services*

A complete series of vocational rehabilitation services, any or all of which may be necessary to restore or increase the individual's working and earning capacities, are now provided as follows:

a. Physical and vocational diagnosis.

As a basis for determining the individual's total needs, a medical examination is required to determine the residual physical capacities and limitations of the disabled person. The medical diagnosis and prognosis will indicate the type and the amount of medical or surgical care if needed (1) to restore those physical activities which have been curtailed and (2) to permit exposure to conditions which the untreated disability precludes.

The vocational "diagnosis" consists of an analysis of the individual's education, experience, interests, and aptitudes as well as environmental and personality factors. The type of training compatible with restored physical capacity, interests and aptitudes is determined jointly by the physician (or surgeon) and the guidance and training specialist.

b. Medical, surgical, and prosthetic services

Physical restoration services may include any type of medical, surgical,

psychiatric, dental, or nursing care necessary to reduce or eliminate the disability as an employment handicap. Convalescent or nursing home care, hospitalization (not to exceed, with the use of Federal funds, 90 days in any one case), transportation and maintenance necessary for physical restoration may also be furnished. Moreover, prosthetic appliances necessary as an aid to employment may be provided. Medical and surgical services are closely coordinated with vocational guidance, training, and other services required in the individual case. Many individuals may need only a prosthetic appliance and guidance before they return to their previous employment; in such cases appliances must be adapted to the occupational needs of the individual.

c. Physical therapy and occupational therapy

Physical therapy and occupational therapy services may be supplied whenever needed in physical restoration or in preemployment training. Such therapeutic services must be closely integrated with the other rehabilitation services made available to the client by the vocational rehabilitation agency.

d. Vocational guidance

When rehabilitation is indicated, many handicapped individuals are in need of guidance in the selection of suitable fields of work.

e. Training

Those persons whose impairments have incapacitated them for their normal occupations, those who have never had vocational experience, or those with skills which have become obsolete due to changing industrial needs, will require training, which may include mental and physical training, preconditioning, prevocational and supplementary training. Specific training programs are geared to the needs of disabled individuals within the framework of the occupational opportunities available in the community.

f. Financial assistance

Many handicapped persons may need financial assistance to support themselves while they are undergoing training or any other preparatory service. The lack of such aid may jeopardize an otherwise promising rehabilitation plan, especially where the individual program may be extended over a period of months. When public funds are used to pay for physical restoration services, the individual must be unable to pay in whole or in part for them from his own resources. It is not necessary, however, to establish financial need for medical and vocational diagnosis, vocational guidance and counseling, vocational training, and placement services.

Also, during training, the individual may need transportation to and from the training agency, or transportation to a point to accept a job. The cost of such assistance may be undertaken as a part of the total cost of rehabilitation.

g. Placement in employment or self-employment

Upon completion of preparation, the individual should be selectively placed in employment on the basis of his restored or enhanced qualifications. Such selective placement is effected to assure proper utilization of skills and to safeguard handicapped workers.

The Joint Statement of Principles with Respect to the Placement of the Disabled (see secs. 5740–5750, Part II, USES Manual), drawn up by the War Manpower Commission and the Office of Vocational Rehabilitation, states the responsibilities of each agency with regard to placement, points up the primary responsibility of the rehabilitation agency to prepare applicants for employment, and advocates that the rehabilitation agency be solely responsible for placement in sheltered workshops and in self-em-

ployment and that the two agencies will collaborate in the placement of the more seriously handicapped. The Employment Service is primarily responsible for replacement of rehabilitated clients in competitive employment, with the collaboration as necessary of the vocational rehabilitation agency.

h. Follow-up on performance in employment

Follow-up is necessary to determine the extent to which the handicapped worker was properly placed and to assist in any adjustments which may be found necessary. A prosthetic appliance may require alteration; the individual may need supplementary training; he may need some special counseling in adjusting himself to working with others; or the job may require reengineering.

2. *Organization and Funds*

The actual rehabilitation process continues to be a State responsibility, with the Office of Vocational Rehabilitation, Federal Security Agency, providing technical consultant services to the States in the various specialized fields of work. Administrative responsibility of the Office of Vocational Rehabilitation also includes the certification of funds to the individual States, the establishment of standards of performance, and the issuance of regulations governing the conditions under which funds will be made available.

The conditions basic to the certification of Federal funds is a State plan approved as meeting Federal requirements under the Act. The State plan must designate the State Board of Vocational Education as the sole agency for the administration, supervision, and control of the plan, except that an agency for the blind, so authorized by State law, shall administer that part of the plan specifically affecting the rehabilitation of the blind.

3. *Availability of Rehabilitation Services*

Under the expanded program rehabilitation is available to a greater variety of disabled individuals. Rehabilitation services are available to civilians injured in war production plants and to veterans with non-service connected disabilities who may not be eligible for rehabilitation under the program administered by the Veterans' Administration. Also included are war-disabled civilians (defined as members of the Aircraft Warning Service, the Civil Air Patrol, the United States Citizens' Defense Corps, or as officers or members of the crew of a vessel owned or chartered by the Maritime Commission or the War Shipping Administration). As far as the type of disability is concerned, the amended Act now makes rehabilitation available to emotionally as well as physically disabled persons and the mentally retarded. And, for the first time, provision has been made for the rehabilitation of the blind.

4. *Eligibility for Rehabilitation*

The State rehabilitation agencies will, for each case referred to them by the Employment Service, determine whether or not the applicant is eligible and feasible for vocational rehabilitation according to established policies. Under authority of Public Law 113, decision as to the eligibility for rehabilitation services is the sole responsibility of the State rehabilitation agency. If it is determined that the individual so referred is eligible and feasible for vocational rehabilitation, the Employment Service will be informed and all rehabilitation services necessary will be provided the applicant.

5. *Relationship With the State Rehabilitation Agencies*

In accordance with the provisions in the Wagner-Peyser Act, the War Manpower Commission and the Office of

Vocational Rehabilitation have formulated a joint statement of principles to guide the constituent agencies in their daily operations (see USES Manual, Part II, secs. 5740–5750) covering functions such as placement, employer promotion, follow-up, exchange of case information, occupational and labor market information, and the like. Interviewers should be familiar with the particular interagency agreement in effect in their States covering these subjects.

C. State Commissions for the Blind

1. *Functions*

State commissions for the blind or other designated blind agencies have been delegated the responsibility for rehabilitation of the blind under Public Law 113. Thus, they perform for the blind the services already described in the discussion of the State vocational rehabilitation agencies. In addition, State commissions are the licensing authorities for blind persons who wish to operate stands in Federal or other public buildings. The cooperating State agency has an agreement to work with the Commission of Education and the State vocational rehabilitation agency in training, placing and supervising blind persons and to provide the initial stock for each blind person licensed to operate a stand.

One of the chief fields of activity is follow-up. The blind placement agencies are responsible under the policy of their organization for permanent, continuous follow-up of blind workers on jobs, even to the extent of accepting responsibility for removal of the blind person when the employer can no longer use his services and/or replacement of the discharged worker with another.

Other functions of the State commissions include the determination of blindness in order to establish eligibility for blind assistance and prevention-of-blindness education through public media, and the actual establishment and supervision of sight conservation classes in elementary schools.

2. *Relationship with the Employment Service*

Working agreements are arrived at voluntarily. In many instances the Commission, or an appropriate subdivision, will release to the Employment Service upon request opthalmological reports for blind people known to the Commission. The Employment Service, in placing the blind, relies heavily upon the advice and assistance of the personnel of the Commission or of private agencies for the blind suggested by it. There is an interchange of both applicants and information.

3. *Job Demonstration by Blind Placement Agent*

Primary employer contacts, sales and demonstration of processes can be performed by the rehabilitation agent who is himself blind. Experience has demonstrated that this approach results in the establishment of confidence on the part of the employment executives in the complete adequacy of blind persons for the approved jobs.

For example, in a West Coast aircraft plant a blind placement agent of the Bureau of Vocational Rehabilitation was requested to examine the jobs on the assembly line to determine which ones could be filled by blind workers. As a result of study and demonstration by the blind agent, handicapped workers are employed in jobs ranging from the operation of intricate drill presses to inspection work on hourglass formers, door panels, etc., and to jobs involving the use of riveting machines and air hammers.

The services of individual applicants can often be most effectively "sold" to employers through demonstrations that blind persons can efficiently fill the job openings.

D. Other Cooperating Agencies

When an applicant cannot benefit from the services rendered by the Employment Service, the local employment office will refer the applicant to the vocational rehabilitation agency for a determination

as to whether he is eligible and feasible for its services. When the agreement in a particular State between the State vocational rehabilitation agency and the Employment Service clearly indicates that certain groups of applicants (e. g., epileptics, cardiacs below II C, and the like) are not served by the rehabilitation agency, the Employment Service may refer such applicants to other cooperating agencies.

1. *Private Agencies*

The changed attitude of the public toward the handicapped is indicated by the social and philanthropic agencies which have been organized in recent years to provide assistance for this group. The first efforts of private agencies were charitable in nature, but later these organizations became interested in the prevention of handicaps. Certain organizations now provide for educational and vocational training as well as medical treatment. Some organizations furnish disabled persons with artificial appliances to increase their employability.

No attempt will be made to enumerate the many agencies offering these various services, since different agencies will be operative in each community. It is highly important, however, that Employment Service personnel be acquainted with the agencies in their communities in order that applicants needing services not furnished through the employment office may be referred to the proper source for assistance.

Typical of the agencies interested in the problems of the handicapped are the National Society for Crippled Children, the National Tuberculosis Association, leagues or associations for the hard-of-hearing, Laymen's League for Epilepsy, National Foundation for Infantile Paralysis, National Society for the Blind, and organizations providing special services to the blind, cardiacs, or other specific types. Fraternal organizations, veterans groups, and service clubs give special assistance to the handicapped, both in securing employment and in financing general educational or vocational training. Physical and vocational rehabilitation, including prosthetic appliances, are sometimes made possible through their assistance. The American Red Cross provides services for the handicapped in many cities. Medical services are available in a large number of cities through local hospitals and clinics.

Many advantages may be secured by the Employment Service through cooperative relationships with such agencies. These may include medical aid, artificial appliances or vocational counseling service for applicants not immediately placeable by the Employment Service. Professional personnel in the agencies can assist interviewers to acquire the necessary information concerning physical handicaps and the work limitations resulting from each. Because of their dealings with handicapped persons, detailed information may be available concerning past work experiences of handicapped applicants to supplement records secured in employment office interviews. For those applicants who require reports from doctors to determine the types of employment which would be suitable, arrangements may be made to secure information from the records of specialized agencies or to secure medical examinations when records are not available from any agency. Cooperation of these agencies in locating job opportunities and in placing handicapped applicants would also be valuable. In addition, the public relations value which would result from enlisting their cooperation should increase community recognition and good will for the Employment Service and enlarge the placement opportunities of the employment office.

In many cities information concerning local agencies will probably be available through a social service directory. In areas where such a guide is not available, employment office personnel must make a community survey to become acquainted with the agencies in the com-

munity. The material assembled for local office use should indicate the following for each agency:

a. Name, address.
b. Type of service rendered (e. g. training, medical care, etc.).
c. Requirements to be met by prospective clients (e. g. residence in certain districts, type disability served as cardiacs, deaf, etc.).
d. Name of agency worker responsible for liaison with the Employment Service.
e. Hours open for business.

2. ***Public Agencies Other Than Vocational Rehabilitation and Commissions for the Blind***

a. Public hospitals and institutions

(1) *Function*

Public hospitals and institutions render the following services:

(*a*) Physical restoration and therapy.
(*b*) Occupational therapy.

(2) *Relationship with Employment Service*

Cooperation between the Employment Service and public health institutions is voluntary. The Employment Service may refer applicants needing treatment or prosthesis in order to become more fully employable. In return, the hospital or institution refers to the Employment Service for placement, discharged persons or those under care but able to work. Medical social workers and, in some cases, even doctors are frequently willing to act as consultants in developing job plans and in securing and interpreting medical information.

b. Schools, including those giving vocational training for war production workers

(1) *Function*

Schools teach specific occupations, trades, or professions and occasionally place applicants on jobs.

(2) *Relationship with Employment Service*

When a handicapped applicant who is not eligible for service through the State vocational rehabilitation agency needs training prior to placement, the interviewer will evaluate the applicant and the courses in which the applicant indicates an interest in terms of physical activities and working conditions, coupled with other factors (age, experience, education, etc.). Whenever possible, it is desirable that applicants be tested objectively to gain better indications of aptitude. If the interviewer and applicant agree upon a course which seems suitable, the applicant may be referred as would any other person.

In special cases where schools or instructors may reject or discourage handicapped applicants, it may be advisable for the Employment Service to arrange for an interchange of information to show on what basis the course is considered suitable for the applicant.

At all times, there are vocational and technical schools available in many communities to which Employment Service interviewers can refer handicapped applicants for specific courses.

c. Agencies for the deaf

In addition to schools for the deaf, some States have a special service to assist them in getting employment. Minnesota, Pennsylvania, and North Carolina have divisions for the deaf within the rehabilitation agency.

d. For agencies connected with disabled veterans, see section VIII

E. *Nature of Relationships With Cooperating Agencies*

Cooperation between the Employment Service and a community agency may spring from a need for joint action ex-

perienced by either party. The Employment Service offers, not just placement without a fee, but a *broad scope* of jobs, much technical information on jobs, and knowledge of current labor market conditions. The agencies offer many services ranging from prevention and treatment of disease to placement. The cooperative understanding arrived at should embrace such points as:

1. Function and responsibility of each party.
2. Methods and forms for exchanging information (physical capacity reports, clearance of current job openings, exchange of technical information, and the like).
3. Exchange of visits to observe the work of each group.
4. Exchange of speakers.
5. Joint conferences when desirable.

VI. FOLLOW-UP AND JOB ADJUSTMENT

A. *Why Follow-Up and Job Adjustment are Needed*

Selective Placement, like the counseling process, does not necessarily end with the placement of an applicant in a job. The United States Employment Service Manual, section on "Employment Counseling in the Public Employment Service", should be consulted at this point for information concerning follow-up in the regular employment counseling process. Additional material is given here because of specialized aspects affecting handicapped workers.

Selective Placement often can not be considered complete until the satisfactory adjustment of the worker on the job has been established. Employers may be using handicapped workers for the first time, or the applicant may be working on his first job since he incurred the disability. These are only two of the special reasons necessitating additional consideration of follow-up for handicapped applicants.

B. *For Whom Needed*

Follow-up and job adjustment are permissive rather than mandatory activities. Every effort should be made, however, to check the placements of the following types of handicapped applicants:

1. The blind, the deaf, and the deafened.
2. Cardiacs below the I A classification.
3. Ex-tuberculous applicants who have quiescent, apparently arrested, or arrested conditions.
4. Epileptics.
5. Applicants who have been discharged from a mental hospital within the last year.
6. Applicants entering the labor market or placed on their first job subsequent to physical disablement, nervous breakdown, or retraining.
7. Applicants with any other disability which is severely limiting.

When any applicants in the foregoing groups have been served by the State vocational rehabilitation agency (physical restoration, vocational training, guidance, etc.) and placed by the USES, the rehabilitation agency assumes the responsibility for follow-up and adjustment, either alone or in collaboration with the USES, and reports the results to the USES. In all other cases the USES undertakes these activities.

C. *Methods and Timing of Follow-Up*

As indicated in sections in the USES Manual on "Employment Counseling in the Public Employment Service" follow-up may be undertaken by means of field visits or by calling applicants into the employment office after hours. In addition, for the handicapped it may sometimes be feasible for the interviewer to maintain fairly close telephone contact with an employer in the early days following placement. In some cases, as with the blind

or the deaf, the interviewer may deem it desirable to visit the employer within a day or two after placement. This may be of particular assistance to an employer who has hired a deaf or deafened person and who seeks guidance in how to communicate with the worker so that there is no misunderstanding about his duties and responsibilities. Another reason for an early contact is to verify that the applicant was actually placed in the job for which he was referred. In large companies, for example, while the personnel man may fully understand the work capacities of the applicant when he is being referred, the job foreman may unwittingly assign the worker to unsuitable duties.

D. Content of Follow-Up Interviews

1. *Employer Contact*

In addition to verifying whether the applicant was placed on the job for which he was referred (or on any other *suitable* opening) the interviewer may be able to suggest simple job adaptations to the employer, when this would assist the worker's adjustment on the job. In the case of a lip-reading worker, for example, the employer or supervisor may appreciate information on how to face the light in speaking to such people. (See Part II, sec. I, item on "Interviewing the Deaf and Hard of Hearing.") In certain orthopedic cases, suggesting a better positioning of work materials or the raising or lowering of the work bench may assist considerably in achieving proper job adjustment.

Later employer contacts may reveal that a worker is about to be transferred to other work in the plant. The interviewer can materially assist the employer by pointing out that *selective* transfer will insure the best production. In other words, the same principles of matching the physical demands of the new assignment and the physical capacities of the worker should be used at the time of transfer as were used at the time of initial placement.

2. *Applicant Contact*

When discussing job adjustment with the applicant, the interviewer considers not only skill and personality adjustment of the worker, but also whether or not he is working within the limits of his physical endurance. Where the interviewer has reason to believe that the applicant, through over-zealousness or any other reason, is over-taxing himself, the interviewer may deem it advisable to secure a new report from a doctor. If such report shows that the applicant should not be doing that job, every effort should be made to transfer him to more suitable employment quickly.

If the applicant is adjusting well to his job, the interviewer may explore with him the desirability of any supplementary training he may wish to undertake in order to advance himself. Referrals for such training may be made to the State vocational rehabilitation agency if the applicant meets the eligibility requirements, or to other cooperating agencies if he is not eligible for rehabilitation.

Follow-up, then, is one of the tools for measuring the effectiveness of the Selective Placement job. Not only is the applicant assisted in making a more satisfactory adjustment, but the employer is frequently aided in satisfactorily handling a situation that may have been new to him. Consequently, this is an effective means of further promoting the hiring of handicapped workers.

Another value of this tool is that it enables staff members to become better acquainted with the skill requirements and physical demands of jobs and the supervisors to whom the applicants are sent. This last is of special value in satisfactorily placing emotionally disturbed applicants where they will be most productive.

VII. RESPONSIBILITY TOWARD APPLICANTS UNABLE TO COMPETE IN LABOR MARKET

When an applicant is so limited that he cannot meet the current conditions in industry, he requires services not within the scope of the Employment Service. Very often these persons have a combination of handicaps in the way of inexperience, lack of education or training, language problems, and the like, as well as physical, mental, or emotional limitations. Sometimes they might be able to work 8 hours daily, but could not meet employer requirements in the way of production.

Obviously a larger percentage of applicants will be "unplaceable" in times of business depression than when labor is scarce. If the Employment Service is to render practical assistance, placement efforts must be directed toward the group which is able to compete in the current labor market on the basis of qualifications.

In many cases determination of placeability cannot be made without the aid of a report from a doctor. Wherever possible such determinations should be secured through the vocational rehabilitation agency. Even after long experience in placing the handicapped, interviewers must not assume responsibility for diagnosing physical condition, or recommending courses of treatment or activities of a therapeutic nature. When an interviewer considers an applicant unable to compete in the current labor market he should consider the possibility of referring him to some other agency, for assistance in line with his needs. *The Employment Service should not attempt to place him in private industry at a wage lower than that paid for normal production, except under the safeguards of the Wage and Hour Law* (see sec. IX). This would undermine wage standards for all workers.

A. *Sheltered Workshops*

In States where the State vocational rehabilitation agency has not undertaken sole responsibility for placement in sheltered workshops, the Employment Service should establish working relations with such shops. These are nonprofit work places, where individuals who cannot compete with the nonhandicapped, or who have been unable to secure jobs in industry, can be given work for which they are suited.

Workers may be employed:

1. For less than the standard day (as in a needle trade shop for people recovering from tuberculosis and able to work only a few hours a day) or
2. On jobs where required production does not meet the demands of private industry.

This service is provided for its therapeutic effect in the treatment of handicaps, to determine physical capacity of applicants for work or as a means of training the handicapped for employment in private industry. There are two ways in which persons may "graduate" from a sheltered shop into industry: They may recover sufficient working capacity to compete once again (e. g. the ex-tuberculosis patient who achieves an 8-hour per day tolerance) or labor scarcities in the community may cause the employers in the community to tap sheltered workshops as a source of labor.

B. *Homework*

Again, where the vocational rehabilitation agency does not assume sole responsibility for this type of placement, the Employment Service may place workers in such openings. Because employers' giving out of work to be done at home has been abused in the past, homework tends to be discouraged by strict legislation in many States. Within the legal safeguards, however, homework may be a solution for applicants so limited as to be almost entirely homebound. In some

communities faced with the most stringent labor shortage, war production plants have made arrangements for giving out some parts of the work to homebound people. Some points the interviewer should remember in dealing with the problem of homework are:

1. Be thoroughly acquainted with all regulations, Federal, State, and local, regarding homework in the community.
2. Check carefully as to how the work is brought to and taken from the applicant. Frequently the applicant has to pick up the work himself or have someone do it for him, as many companies have given up their delivery trucks for the duration.
3. Emphasize to the applicant that he is expected to earn the legal hourly minimum for the hours he works (homework is usually paid on a piece work basis in such operations as button carding, sample card mounting, coil winding). This usually means that, although he may work only part time, he must be able to maintain a certain rate of production.

VIII. ADDITIONAL AIDS FOR SERVING DISABLED VETERANS

Undoubtedly one of the major groups to be served for many years to come will be veterans who return with physical or emotional handicaps sustained in the course of the war. At least half of the persons discharged to date have been given disability discharges. This percentage may be expected to increase as additional combat casualties are discharged.

The material in this section is intended to supplement all the other techniques and information in the handbook.

A. *Securing Information for Veterans*

In securing physical capacity information for veterans with disabilities for which such reports are desirable the following may be of assistance:

1. The veterans whose claim for disability pension has been decided either favorably or unfavorably usually possess a Veterans' Administration form letter (p–82a, p–82b or mimeo A. D. J. #80). The "Diagnosed Conditions" set forth in the letter may serve as a basis for determining the existence and extent of any conditions requiring Selective Placement.
2. Many veterans have a copy of still another form in their possession, the A. G. O. 100. While this does not contain medical information, it does have a very good summary of the veterans' educational background and interests, including any skills acquired in the military service.

3. *Hospital Application*

The best arrangement developed thus far for securing information from medical sources, which can be used in a placement situation, is the hospital application process. (See USES Manual, Part II, 8200 ff.) This hospital interview justifies the expenditure involved only if the interviewers doing the job have access to medical information through consultation with the doctors or case workers most closely associated with the veterans being registered. Consequently, such interviewers must be thoroughly grounded in the physical demands approach, must have sufficient technical information concerning specific disabilities and their evaluation so that they may translate medical records into physical capacity terminology, which is then recorded so that any interviewer in other offices and even in

other States may use the information. A hospital application based solely upon an interview with the hospitalized veteran is not adequate. It cannot be overemphasized that access to consultation with a doctor or case worker is the keystone of this program. Of course, in addition to securing physical capacity information, the hospital interviewer takes a complete application securing *full* information regarding occupations and training in the armed services; employment, training, and education prior to military service; special abilities, interests, and the like.

B. *Employment Service Organization as Affecting Handicapped Veterans*

The local employment office handbook, "A Program for Service to Veterans" includes a discussion of the organization of service to veterans in the local office which should be referred to at this point. While organizational patterns may vary from place to place, cooperation among staff members serving veterans should be effected to render the best possible service.

C. *Cooperation With Other Agencies Serving Veterans*

1. *Veterans' Administration*

a. Vocational rehabilitation for the service-disabled

Public Law No. 16 (March 1943) makes the Veterans Administration responsible for administering the vocational rehabilitation program for veterans after their discharge from service, if they have a pensionable disability. While training, veterans accepted for this program will be given subsistence expenses. If the veteran is married and has dependents, the subsistence allowance will be increased proportionately. To be eligible, a veteran must have an honorable discharge, must have served in active military or naval service after December 6, 1941, and must have an employment handicap due to the incurred disability. The program will last 6 years after the cessation of hostilities and will offer a maximum of 4 years of training to any person who is eligible. The Veterans Administration will refer rehabilitated veterans to the Employment Service for placement.

b. Education

Some veterans who will be considered handicapped by Employment Service definition will not have service-connected disabilities which are pensionable and so they are not qualified for vocational rehabilitation through the Veterans Administration under Public Law No. 16. However, such veterans who need further education can still be referred to Veterans Administration because they may qualify for education benefits under the "G. I. Bill," (Public Law No. 346). Specifically, the "G. I. Bill" provides for a minimum of 1 year but not more than 4 years of education and training, depending upon length of service, at an approved institution, in subjects chosen by the veteran. To be eligible the veteran must meet the following conditions:

(1) Service for 90 or more days in the military or naval forces on or after September 16, 1940, and prior to termination of the present war, and

(2) A discharge or release under conditions other than dishonorable, or a discharge for an actual service-incurred injury.

(3) The veteran must have been under 25 years of age at the time of entrance into service or if over such age his training must have been impeded, delayed, interrupted, or interfered with by entrance into service.

Other provisions of this act which should be made known to veterans to assist them in determining whether

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or not to take advantage of the educational benefits are the following:

(1) Payment of all tuition and other fees, the cost of books, supplies, and other necessary expenses not to exceed a maximum of $500 per school year.
(2) Payment of subsistence allowance while pursuing education or training in the amount of $50 per month if without dependents or $75 per month with one or more dependents.
(3) Part-time attendance in a course of education or training at a reduced subsistence allowance or without allowance, but with payments of tuition and other expenses.
(4) Right of the veteran to retain as his personal property the books and equipment furnished, provided he satisfactorily completes his course of education or training.
(5) Vocational and educational guidance to persons eligible for education and training under this title.

2. *Selective Service System*

Selective Service is responsible for aiding veterans, including the disabled, to return to their former employers, if they so desire.

When returned veterans prefer to seek new jobs, Selective Service refers them to the Employment Service. The "Joint Statement Between the War Manpower Commission and the Selective Service System Concerning the Employment of Returned Veterans",[1] provides that the War Manpower Commission will have the responsibility of placing returned veterans in new positions and the Selective Service System will be responsible for aiding returned veterans in seeking reinstatement in their former positions.

[1] Issued with WMC Field Instruction No. 235, February 11, 1944.

3. *The Armed Forces*

Three types of cooperation have been developed thus far between the Employment Service and the Armed Forces:

a. Release of medical information by the Armed Forces to properly authorize employment service personnel at hospital interviews when such information is needed to place a disabled veteran successfully.
b. Interviewing by an employment service staff member of hospitalized men and women about to be discharged from the Armed Forces. (See sections on "Registration of Disabled Veterans at Army and Navy Hospitals" of the USES Manual.)
c. Release by the Armed Services to the employment service of information concerning jobs performed in each branch of the services. The Division of Occupational Analysis of the War Manpower Commission has developed "Special Aids" for translating such military jobs into comparable or closely related civilian jobs. In addition to information concerning the duties of military occupations and the lists of related civilian jobs, these special aids include information on training requirements and the physical demands of the civilian jobs.

4. *Civil Service Preference*

In general, disabled veterans are served by the same principles of interviewing, placing and referral to other agencies as are other handicapped applicants. The only difference lies in the demand for veterans that veterans' representatives and other agencies may be able to encourage among employers, and in the degree of preference they may be accorded under Civil Service regulations. The term "disabled veteran," as used in establishing preference for Federal Civil Service employment, means a veteran with a disability which is service-connected and which is existing at

the time preference is claimed. It does not include veterans whose disabilities are not connected with their military or naval service, except those veterans over 55 years of age who are receiving pensions or compensation under existing laws.

While preference is given to all veterans with honorable discharges, the following additional considerations are accorded *disabled* veterans:

a. Disabled veterans (having present existence of a service-connected disability) are granted 10 points and need earn a rating of only 60, a total rating of 70 being all that is necessary to have their names appear on the list.

b. A veteran not over 55 years of age, to establish disability preference, must show that it is service-connected and of present existence. This is done through the official records of the Veterans Administration and also of the War and Navy Departments or of the Coast Guard.

c. Veterans over 55 years of age, in claiming disability preferences whether service-connected or not (by reason that they draw pensions or compensation under existing laws), must furnish a statement from the Veterans Administration showing that they are entitled to pension or compensation.

d. Physical requirements may be waived by the United States Civil Service Commission in the case of a disabled veteran.

With regard to Civil Service examinations, applicants entitled to 10-point preference may file application at any time for any position they may specify for which there is an existing list, or a list about to be established, or to which any appointment has been made within the preceding 3 years. The names of these 10-point preference eligibles are entered at the head of the registers.

The Civil Service Commission will, after giving consideration to the recommendation of any accredited physician, waive the physical requirements in the case of any veteran, provided in the opinion of the Commission the veteran is physically able to discharge efficiently the duties of the position.

IX. SUMMARY OF LAWS AFFECTING THE HANDICAPPED

In order to carry out his functions satisfactorily, the interviewer must have a general knowledge of the wage and hour laws and other regulations which are intended for the protection of the worker. In placing the handicapped it is essential not only that he have this general knowledge of labor laws and regulations, but also that he be familiar with workmen's compensation and other State, local, and Federal laws that are related to the employment of handicapped workers. This is necessary in order to understand in what way the regulations may affect the employment of disabled applicants, what bearing they may have on proposed job plans, what legal preferences in employment are accorded to disabled veterans, when an employer is not complying with legal standards and restrictions in the employment of the handicapped and what protection the employer has in hiring disabled workers. In short, it is important that the interviewer have a knowledge of these laws and regulations in order to be able to assist the handicapped person effectively in choosing and finding suitable work.

A. *Federal Laws*

1. *Vocational Rehabilitation (for Veteran and Civilian)*

See pages 33 to 37 for rehabilitation available through the State vocational

rehabilitation agencies and page 43–44 for that available through the Veterans Administration.

2. *Social Security Act, 1935*

The Social Security Act grants money to the States to be used in conjunction with State funds for financial assistance to the needy blind.

3. *Randolph-Sheppard Act, 1936*

Licensed blind persons may operate stands in Federal buildings. State vocational rehabilitation agencies survey (a) opportunities for such stands and (b) industries which may be encouraged to employ the blind. This information obtained under (b) is made available to the public and to individuals or organizations engaged in work for the blind. Blind persons obtain licenses through State Commissions for the Blind or other authorized State agencies. The State rehabilitation agencies may also aid in the development of opportunities for employment in stands other than in Federal buildings.

4. *Wage and Hour Regulations Applicable to the Handicapped*

The placement of disabled workers at rates lower than those offered to nonhandicapped workers should, as a rule, be avoided.

However, it may be necessary sometimes to accept subminimum pay rates when it is apparent that the disabled worker cannot compete on the basis of productive equality with others. The United States Fair Labor Standards Act (Wage and Hour Act, 1938) recognized this necessity. The following is a résumé of the regulations (Part 524) of the Wage and Hour Division of the United States Department of Labor, which has the responsibility of administering the Act. Interviewers should exercise caution in providing information on these regulations and should not interpret them. Requests for information should be referred directly to the regional representative of the Wage and Hour Division.

a. Application procedure: Application to employ handicapped workers at less than the minimum wage may be made to the local regional director of the Wage and Hour Division.

b. Issuance of special certificates: Upon acceptance of the facts presented in the application, a special certificate is issued authorizing the handicapped worker to work in a designated position for a specific length of time and at a rate not lower than the minimum wage indicated in the special certificate.

c. Eligibility for special certificates: As a general rule, no special certificate will be issued:

(1) For a worker with temporary disabilities.

(2) For a worker alleged to be slow or inexperienced, unless he is also handicapped.

(3) Where age alone is cited as the disability, unless it can be established that the earning capacity of the worker is impaired by reason of age.

(4) For a worker (irrespective of handicap) whose piece-work earnings are generally equal to or above the minimum wage.

(5) Where the worker's earning capacity is impaired primarily because of low piece rates and not, in fact, by physical or mental deficiency.

Special certificates are issued for two classes of handicapped workers:

(1) Handicapped persons being vocationally rehabilitated, for the duration of the training period only.

(2) Handicapped persons who cannot compete on equal terms with nonhandicapped persons.

d. Requirements relating to wage rates: No wage rates in any certificate may be fixed at less than 75 percent of the minimum wage unless, after investigation, a lower

rate seems clearly justified. The rate proposed in the application should be as close to the statutory minimum as the earning capacity of the worker warrants.

If more than 5 percent of the workers employed in any establishment did the same work and were paid as much formerly as the handicapped worker, the special rate cannot be allowed. Charitable and nonprofit organizations are exempted from this provision.

e. *Right of review:* Any person aggrieved by any action of the local representative may file a petition with the administrator. A public hearing will be held on the complaint.

5. *Civil Service Regulations Applicable to the Handicapped*

a. *Physical requirements under war service regulations:* During the war emergency, due to the shortage in the labor supply, the general physical regulations of the U. S. Civil Service Commission were greatly liberalized in order to permit handicapped persons to apply for positions. The War and Navy Departments, for example, instructed their field establishments to hire handicapped civilians wherever possible. Under War Service Regulations the decision as to the prospective appointee's physical qualifications was based solely on the answers to the two following questions:

(1) Can the applicant do the work?

(2) In doing it, will he be a hazard to himself or to others?

This physical standard thus permits the admission to examinations of persons with any types of disabilities.

In view of the labor shortage, the Civil Service Commission is currently making every effort to encourage appointing officers to employ the services of persons who are deaf, hard-of-hearing, who have seriously impaired visual acuity or who have other physical handicaps, but who can meet the above requirements as to ability to perform their duties with safety to themselves and others. The Commission, in encouraging the employment of handicapped persons, is emphasizing that this policy is part of a general trend toward further use of the services of the handicapped.

In the period between October 1942 and July 1943, more than 13,000 physically handicapped persons were placed in Federal establishments. These include blind workers, persons with total or limited disability in hearing, persons with orthopedic disabilities, as well as persons with arrested tuberculosis, or organic heart impairment. All were placed in positions adequately safeguarding them against any aggravation of the disability.[2]

It is well for the interviewer to take cognizance of this liberalized policy of the Civil Service Commission in assisting handicapped applicants to obtain suitable employment.

b. *Disabled veterans' preference for Civil Service employment:* (See pp. 44–45.)

B. State Laws

1. *Workmen's Compensation*

Before the advent of workmen's compensation laws, a man who sustained an injury on a job had only two courses of action open to him, namely, to bear the expense and any ill effects himself or to sue the employer in court for damages. The latter was a long-drawn-out, costly and often fruitless affair.

The general principle of the workmen's compensation legislation is the payment of benefits to injured or disease-stricken employees or to the dependents of those killed in industry by accident or disease, without regard to the question of negligence.

[2] "Untapped Manpower," U. S. Civil Service Commission, August 1943.

At the present time all of the States except Mississippi have workmen's compensation laws. There are also Federal laws governing civil employees, longshoremen and harbor workers, and private employees in the District of Columbia. In addition such laws are operative in Puerto Rico, Alaska, Hawaii, and the Philippines.[3]

Since provisions of the compensation laws vary from State to State, no attempt is made here to distinguish among the State laws or to enumerate the provisions State by State. The following list points out some of the provisions in effect. Interviewers are cautioned, however, to consult the laws in their own States, since the provisions given here may or may not be included in their State compensation laws.

a. A majority of compensation acts cover some or all occupational diseases.

b. In a few cases, occupational disease has been included in a broad interpretation of the word "injury."

c. In all compensation acts, medical aid must be furnished to injured employees, usually in addition to compensation payments.

d. In some States the acts provide money for furnishing artificial limbs and other appliances and place upon the State vocational rehabilitation agency the responsibility for retraining in a suitable occupation those workers who cannot return to their previous occupation.

e. The passage of compensation laws increased the difficulty of finding employment for handicapped workers because employers feared the financial loss which would result from a subsequent disability which might be suffered by a handicapped employee. Therefore, some States passed laws which permit handicapped workers to waive their rights to compensation for injury received in a subsequent accident; thus some employers were willing to reemploy the handicapped. The Association of Casualty and Surety Executives, however, points out that waivers defeat the purpose of workmen's compensation laws, which is to compensate, not deny or waive claims for injury, and evades, rather than solves, the problem of employment of disabled persons. Some States limit the employer's responsibility only to the extent of injury resulting from the second accident. Following are some of the provisions to be found in "second injury" clauses:

(1) Some laws provide that compensation shall be apportioned according to the disability resulting from the injury, the last employer paying only that amount which is attributable to the second injury.

(2) Some laws provide that, in determining compensation for the second injury, the earning power, decreased because of the first injury, shall be used as a basis in rendering the award.

(3) Some States bolster their "second injury" clauses with "second injury funds." Under this scheme, the employer pays only for the subsequent disability, but the worker gets full compensation for the combined injuries (with the difference coming from a special fund), whether the original disability was sustained in industry or otherwise (war, illness, nonindustrial accident).

It would be desirable for interviewers working with the handicapped to outline the workmen's compensation law in their particular State showing clearly:

(1) Groups of workers covered: Government employees, do-

[3] "Workmen's Compensation—An Outline of Legislation in the United States and Territories as of January 1, 1943," U. S. Department of Labor.

mestic, agricultural, and casual workers are among the groups not oridinarily found in State workmen's compensation laws.

(2) Whether there is a second injury clause.

(3) If there is, is there a second injury fund?

(4) Whether waivers are permitted; if so, under what safeguards?

The main fact that interviewers will emphasize with regard to insurance rates is that they are initially determined on the basis of payroll and occupation. As one insurance executive puts it, "There is nothing in any formula for the establishment of compensation insurance rates for such insurance that takes account of the age or the physical handicap of any employee."[4] Rate adjustments in rates are based on accident experience. There is no evidence, we must remember, to indicate that handicapped persons are more liable to accidents than nonhandicapped. Studies made so far, as a matter of fact, seem to point in the opposite direction.

[4] J. Dewey Dorsett, manager, Casualty Department of Association of Casualty and Surety Executives.

2. *Other State Laws*

Interviewers should check and secure pertinent information on all other State laws affecting the handicapped, such as those relating to homework, to employment of disabled veterans, to rehabilitation, or to special groups such as the blind, the deaf and the like.

C. *Local Laws*

There may be local regulations of certain occupations (e. g. licensing for barber shop work and regulations regarding the employment of persons with certain types of infection) with which interviewers should be familiar.

X. SUMMARY

Effective Selective Placement can do much to create equality of opportunity for the handicapped in the world of work. In encompassing selective initial placement, job adjustment, selective transfer, and flexible medical standards related to job requirements, the approach proves in a positive way the ability of the handicapped to do a full job in open competitive employment. In including cooperation with other community agencies serving the handicapped, the Selective Placement program recognizes the social responsibility of the Employment Service for directing applicants whom it cannot serve or those who need supplementary services to other agencies prepared to help them.

Personnel workers, whether in private industry or in Government employ, reach the highest peak of professional performance in the exercise of the Selective Placement function. Similarly, supervisors of the handicapped will reach the highest level of skill in supervision when supervising the handicapped.

The physical demands approach, by pointing out the fallacy of the single-standard medical examination, opens the doors to handicapped people who used to experience a heart-sinking sensation whenever they applied for jobs and heard that a physical examination was required. And, of course, employers benefit by more realistic, flexible medical standards. A manufacturer of washing machines in peacetime, but now engaged in turning out vital war products, retrieved through re-examination based on the physical demands approach 40 people whom they previously rejected under their old single-standard medical examination. One Government department is reviewing the rejection of civilian workers at Government operated industrial plants with a view to recovering as many as possible who can meet the physical requirements of the occupations involved.

Recognition of the fact that no job requires all of the physical, mental or emotional capacities of human beings for suc-

cessful performance, coupled with use of the physical demands approach, means that there is no job which cannot be performed by some kind of handicapped person. In most instances, matching of the job demands and the applicant qualifications is all that is required. In some cases, however, a slight change in equipment, repositioning of work, or some other moderate reengineering of a particular job may be indicated to secure maximum utilization of the worker's skills and to promote his satisfactory adjustment on the job. Frequently such reengineering, while initiated for a handicapped worker, is taken over and used for all workers in the plant. In a company manufacturing aeronautical equipment, a veteran who had lost an arm at the elbow was employed as a packer. He wanted very much to succeed at the work, but the foreman noticed that at the end of each day he was very tired. A jig was devised to simplify the movements required in packing, and not only did the veteran's fatigue disappear, but his production jumped considerably. The jig was then introduced among all other workers in the department and used effectively to increase over-all production.

Full use of the services in the community, including full use of the services of the State vocational rehabilitation agency, will substantially improve the placement opportunities for the disabled. Medical, surgical and prosthetic services; physical examinations; physical and occupational therapy; vocational training and, according to the circumstances, financial assistance; or other services provided by the State vocational rehabilitation agency should be fully utilized to provide optimum placement. Every means to make the handicapped individual employable or render him more advantageously employable should be explored, and community cooperation to the end of effective placement of the individual should be fully utilized.

Assisting applicants to restore or increase their physical capacities and vocational skills by cooperation with other agencies, and constant application of the principles of Selective Placement, may some day enable us to reach the point where we no longer have to regard persons with physical, emotional or mental handicaps as having employment handicaps. While that goal may not be realizable in the immediate years to come, it is a goal toward which it is worth while striving.

PART II

SPECIFIC DISABILITIES AND THEIR EVALUATION

INTRODUCTION

Interviewers serving the handicapped must acquire and continuously augment a background of technical knowledge of disabilities. Part II of this handbook contains materials covering the most common disabilities encountered among applicants. The information presented, however, does not attempt to cover every type of disability in each section, nor does it give every ramification possible. Emphasis has been placed upon such cause and effect factors as have a definite link with employment. In the section on hearing the causes of loss of hearing are set forth because interviewers must know, for example, that persons with middle ear diseases should avoid conditions conducive to frequent colds, such as sudden temperature changes, humidity, and the like. It is also extremely important to distinguish between middle ear and inner ear causes because persons with the former may work in noisy surroundings, while those with the inner ear disturbance would be definitely harmed by noise.

Part II should be read with the aid of a standard medical dictionary, which should be part of the regular kit of interviewers serving the handicapped, who, in addition, will wish to supplement this material by reading current literature, attending lectures when possible, and by any other means available.

It cannot be over emphasized that the material contained in Part II serves an information purpose only and in no way qualifies an interviewer to diagnose an applicant's disability.

Furthermore, the adjustment of the interviewer serving the handicapped to his job is an important as is the applicant's adjustment to his disability. The interviewer who reads the material on the following pages must not use this information to diagnose the disability of the applicant before him. *In fact, he should never attempt to diagnose the ills of the individual before him.* He should maintain the same professional standards regarding the confidential nature of medical information he secures concerning applicants as do the doctor, nurse, and professionally trained case worker.

I. HEARING AND SPEECH HANDICAPS

A. *Hearing Defects*

1. *Definitions*

a. Deaf: A person born deaf or who became deafened at a very early age (usually before the fourth or fifth year) before acquiring a vocabulary.

b. Deafened: The "adventitiously" deafened are those who have lost their hearing entirely, but *after* they had learned to speak and had acquired a vocabulary. These people can still speak, although their voices may change; they may or may not be good lip readers.

c. Hard-of-hearing: Hard-of-hearing people have some functional hearing left, whether they perceive sound with or without the aid of an instrument. Again, voice may change.

2. *Causes of Loss of Hearing*

a. Middle ear diseases (otitis media) affect the sound *conducting* portion of the ear. Working conditions conducive to frequent head colds or throat infections should be minimized for people suffering from these diseases. The following working conditions should be examined: outside, hot, cold, humid, wet, dry, sudden temperature changes, dusty. Most persons with middle ear hearing loss are able to work in noisy surroundings.

b. Inner ear diseases disturb the *sound perceiving or registering* mechanism of the ear, including the auditory nerve, and the most favorable prognosis usually is a slowly progressive loss of hearing. Continuous or strident noise is distressing and if dizziness is present, standing, balancing, climbing high places, cramped quarters, and exposure to mechanical hazards will have to be investigated. Noisy surroundings should be avoided when the auditory nerve is involved.

c. Otosclerosis seems to spread from middle to inner ear and causes deterioration of the auditory nerve (mixed type of impairment). Prognosis is usually unfavorable. Noisy surroundings are most undesirable and fatiguing for persons with otosclerosis.

d. Occupational deafness or loss of hearing results from injury to the auditory nerve as a result of working long periods in very noisy places. Closely related to this is *traumatic deafness* (due to a blow or injury such as skull fracture).

3. *Characteristics of the Deaf and the Hard-of-Hearing*

a. The deaf

Many deaf persons can learn to speak. Those who must communicate by sign language or writing, however, are more limited than the oralists.[1] Lip reading may become a partial substitute for hearing. It takes some time, however, for a lip reader to accustom himself to new people and so initial employment interviews may present difficulty even to a proficient lip reader. Thus, the interviewer should pave the way by informing the employer of any applicant's lack of hearing and the degree to which he compensates by lip reading.

The deaf, like the hearing, differ widely in mechanical and motor ability, and compare favorably with the hearing in mechanical aptitude as well as in native intelligence. A fine selling point for many of the deaf, in addition to their imperviousness to the loudest, most distracting noises, is their good vocational background. There are special schools in many sections which equip the deaf with trades such as printing, tailoring, shoemaking, woodworking, commercial art, drafting, machine operating (machine shop, sewing machines, sheet metal, office machines) millinery, typing, and cooking.

b. The hard-of-hearing

When impairment is due to disease, a physical capacities report would be helpful. When only a medical report is available, this should at least show cause, extent of impairment, prognosis and limitations. We have seen for example, how persons with middle ear impairments due to sinus or catarrh should probably avoid dampness, humidity, and great temperature variation.

Some hard-of-hearing persons may develop personality problems if they refuse to recognize their own hearing impairment. However, most individuals will be as well adjusted as anyone with normal hearing.

[1] An oralist is a deaf person who has been taught to speak by the oral method, i. e., he learned to use his voice apparatus mechanically by vibration and breath control, not by imitation of sound, which is the way hearing people learn.

Hearing aids can restore a good measure but perhaps not *all* of a person's hearing ability. In addition, aids are subject to mechanical failure at times (the battery goes dead or the cord breaks) causing it to appear that the wearer does not benefit from his aid. The interviewer, in order not to misjudge the applicant, should therefore question him closely as to how much service he gets from his aid. How well it serves him for conversational purposes is gauged in the interview itself. How well it serves him for sound heard from a distance may be evaluated by his answer to the question "Can you use your aid in the movies? How far back do you usually sit?"

In addition to hearing aids, there are many ways of minimizing a hearing loss. Telephones anywhere in the nation can be equipped with amplifiers. In some cases incoming calls can be signaled by flashing lights rather than by a bell. Similarly, lights can often be substituted for warning bells on machinery. Consequently, in evaluating the hearing ability of a hard-of-hearing applicant, the interviewer should take into account the possible adjustments in job environment that an employer might make to enable the worker to do his best.

c. Some common factors affecting work capacity.

In concentrating on the hearing loss, the interviewer should not overlook the possibility of other physical handicaps. Hearing loss does not preclude other bodily weaknesses, and we find deaf cardiacs, or hard-of-hearing asthmatics, for examples.

Both the deaf and the hard-of-hearing may develop voice problems. The deaf cannot hear their own voices at all, while the hard-of-hearing may hear them defectively. Thus, we have the common occurrence in local offices of people who either shout unnecessarily loud or whisper. The speaking capacity of such individuals will have to be consciously evaluated to aid in suitable placement.

4. *Interviewing the Deaf and Hard-of-Hearing*

Some hard-of-hearing applicants may not admit or may not even know of their difficulty. The interviewer can soon determine if a real impairment exists by casually covering his lips as he speaks, or by bending his head down to hide the movement of his lips. When impairment is present the interviewer should then:

a. Face the light so that it falls clearly on his lips.
b. Look at the applicant, not down, or away.
c. Speak naturally and enunciate clearly. He should not mouth words, since this is a hindrance and not a help. If the applicant has trouble understanding a word, repeat the entire sentence, or better still, rephrase the thought. A hard-of-hearing person gets much of the meaning from context.
d. Be sure the applicant has understood all instructions or advice by having him repeat the thought.

5 *Evaluation*

To summarize, the items below in addition to hearing should be examined, depending on the cause of hearing impairment and degree of compensation with which the individual has adjusted.

Hot, cold, or humid working environment; sudden temperature changes; wet, dry or dusty surroundings; standing; balancing; climbing; working in high places or cramped quarters; exposure to mechanical hazards which have only auditory warnings of danger; amount of talking or need for hearing; noise; vibration.

It should be noted here that no deaf, deafened, or hard-of-hearing person should be refused consideration for a job for which he otherwise qualifies because there is a mechanical hazard which has only auditory warning. Interviewers should be prepared in such case to suggest to the employer the use of a simple visual signal (light flash, perhaps) or other aid.

B. Speech Defects

Speech defects have been defined as "any speech characteristic which unfavorably diverts the attention of the listener from the speech to the speaker." These defects may arise from organic faults, such as cleft or deformed palate, hare lip, hearing loss, tenseness of chest muscles as in some forms of spastic paralysis, etc., or from emotional disturbances which result in stuttering. Some speech defects reflect poor motor coordination and the interviewer should question and observe the applicant further.

In a few instances, persons who have lost all speech have been fitted with artificial larynxes to enable them to approximate speech although the tone may sound mechanical.

Obviously a person with seriously impaired speech will not be referred to jobs essentially demanding rapid, constant talking or frequent contact with many new people. Because a job seeker may stammer badly under the tenseness of contacting an employer, the interviewer will find it desirable to advise the latter, not only of the applicant's qualifications for the job, but also of his speech difficulty. This will prepare the employer and increase the confidence of the applicant, perhaps even to the extent where he can talk more fluently.

Some people with speech defects may never have known where to go to improve their condition. Interviewers should be acquainted with agencies in the community to which to refer such applicants.

Many notable examples may be cited of individuals with speech defects who have achieved prominence and held positions of great responsibility. Therefore, no hard and fast rule may be drawn which would eliminate persons with speech defects from public contact jobs.

II. ORTHOPEDIC HANDICAPS

Orthopedic handicaps include all types of defects, impairments, or peculiarities in the skeletal structure of the body (muscle, bone and joint) which affect ability to feel or move or both.

A. Chief Causes

1. *Accident or Injury* (Trauma)

It is estimated that almost two-thirds of the orthopedic handicaps are due to battle casualties and to accidents in industry, in the home or in public places.

a. Reports from doctors may be unnecessary if:

(1) The disability was incurred some time ago and the individual has been satisfactorily employed during the intervening period.

(2) There is no current pain or discomfort connected with the disability or with any artificial appliance used.

b. Physical capacity reports will be helpful if:

(1) The disability is recent.
(2) There is pain or discomfort.
(3) The applicant is under current medical care.

2. *Congenital Disability*

Disability present at birth apparently acounts for only a small percentage of orthopedic handicaps. Reports from doctors are rarely needed. Persons with congenital deformities or absence of limbs or parts, however, may be better adjusted and may compensate better

than people who acquire an impairment later in life.

3. *Diseases*

Diseases account for about one-third of all orthopedic handicaps. Since the disease itself may impose limitations over and above those resulting from paralysis, deformity, or amputation, the interviewer should know the principal ones, whether or not reports from doctors are necessary, and probable limitations, if any, arising from each disease.

a. *Poliomyelitis* (infantile paralysis) is an inflammation of the gray substance of the spinal cord. Any part of the structure of the body may be affected, depending on which part of the spinal cord the disease attacked. Poliomyelitis tends to occur chiefly among children, but adults are not immune.

Reports from doctors are not suggested unless the applicant is under care, or suffers pain and discomfort; under these conditions they would be helpful. The applicant himself usually has a pretty good knowledge of his work capacity.

b. *Osteomyelitis* is an inflammation of the bone marrow. It too occurs chiefly among children. While osteomyelitis can be cured, the chance of recurrence is great. Reports from doctors will be helpful unless the condition is quite old, with no history of recent recurrences. It is also desirable to ask the applicant how well protected the wound is. If it is near the surface and unprotected, a chance blow may cause a flare-up. In this case the applicant will seek to avoid moving objects or mechanical hazards, or perhaps kneeling, crawling, or running, depending on the location of the wound.

Osteomyelitis as a disease imposes no special limitations and recurrence is not caused by any type of work. The capacity of, and suitable conditions for, such persons will depend on the extent of the deformity suffered, rather than on the nature of the disease.

c. *Thromboangiitis obliterans* (Buerger's Disease): See discussion of this disease under cardiovascular handicaps. See Parts B and C of this section for amputations of arms or legs. The interviewer, in evaluating the capacity of applicants with amputations due to this disease, will bear in mind that it tends to be progressive.

d. *Tuberculosis of the bone* is an infectious disease affecting bone structure (such as hip joints, spine) and tends to be progressive.

Reports from doctors will be helpful, and are especially desirable in cases of tuberculosis of the spine, for there may be lung, kidney or heart involvement.

Persons with curvature due to tuberculosis of the spine, or with stiff (fused) hips due to tuberculoses of the hip joint, may prove to be greatly limited in lifting power, if they can lift at all, but may be able to stand for long periods. They may prefer alternating sitting and standing if the curvature makes sitting for long periods uncomfortable. Other work limitations, in general, are similar to those for persons with inactive pulmonary tuberculosis.

e. *Muscular dystrophy* is an organic muscle ailment. Highly coordinated activity may prove difficult for applicants with this ailment. They also find they must hold a hand upon the knee in order to rise or sit.

Reports from doctors may be helpful if the applicant can not adequately describe his capacity.

f. *Arthritis* is an inflammation of a joint and is of two types, namely, Atrophic arthritis (rheumatoid or infectious) and Hypertrophic arthritis (osteo-arthritis).

Reports from doctors will be

helpful only in severe cases to show whether the applicant may work and, if so, to what extent. Arthritics should generally seek dry, warm, even-temperatured surroundings.

B. *Defects of Arms and Hands*

1. *Amputation or Absence of Some or All Parts of Hand or Arm*

a. Arm: The shorter the arm stump the more difficult it becomes for an individual to balance the body. Persons with high amputations may develop compensating posture curvature to retain balance. An amputation below the elbow leaves a person with greater capacity (other factors such as attitude, healing of scar, etc. being equal) than does an amputation above the elbow.

b. Hand and fingers: Not all amputations of fingers render an applicant physically handicapped. Manual workers with only partial amputation of one or two fingers (but not a thumb) are not handicapped if they have a trade and expect to continue at it (example: woodworking machine operator). Interviewers should note carefully which hand is affected, which fingers are missing and to what extent (1st and 2d joint).

Loss of a thumb is a considerable handicap. The thumb counteracts and supports the fingers in such actions as fingering (pinching, grasping, holding), pushing, pulling, carrying, throwing, and lifting. These activities may be limited, but not necessarily eliminated because:

(1) The thumbless hand can still grasp some objects between fingers and palm so as to push, pull, carry, throw, etc.,
or
(2) The other hand may be trained to perform these functions.

c. Artificial appliances: Artificial arms or hands are generally worn for the sake of appearance. With rare exception those which look like the human arm and hand have relatively little *functional* power.

Most appliances which do increase the grasping, manipulative and lifting capacity of an individual are either in hook shape, or fashioned like a jig or fixture to meet the physical activities demanded by the worker's occupation (e. g.—a carpenter may have a work arm with tweezer-like prongs for grasping and holding nails. The good arm uses the hammer.) Many applicants therefore have an arm with two appliances; the so-called dress hand and the work hook. Equipped with the latter, applicants can perform jobs such as welding, where the work is held firmly by the hook or other specially designed device and the natural hand manipulates the torch. Even a dress hand may be used in certain types of work such as clerical jobs where it merely holds down paper or other objects.

Persons with amputation or absence of the hand below the wrist rarely use appliances since the wrist movement left gives some dexterity and an appliance would only be a hindrance.

2. *Other Disabilities of Shoulders, Arms and Hands* (tremor, rigidity, flaccidity, dwarfing, enlargement of joints, twisting, wasting of some parts)

a. Most of these conditions are clearly visible at first glance. Some, however, may be cleverly concealed by applicants in the way they carry a coat, newspaper or pocketbook, or keep the hand in a pocket. Interviewers will be particularly observant when a person signs the application card.

b. The interviewer should feel free, after having established a friendly relationship, to ask the applicant to demonstrate whether he can:

(1) Move his arm overhead, out to side, front, back and down.
(2) Bend arm at elbow.
(3) Rotate and bend wrist.
(4) Flex all or some fingers.
(5) Touch thumb to tip of each finger on hand.
(6) Close fist.

3. *Evaluation of Work Capacity*

Individuals, even those with identical amputations, vary considerably in remaining capacity because of other factors (attitude, adaptability, former skills and the like) that enter the picture. For example, some men learn to write with the *artificial* hand, others teach themselves to write with the good hand. Thus, each person will have to be evaluated in the light of his adjustment to the following: fingering, handling, feeling, pushing, pulling, reaching, carrying, lifting, throwing.

If pertinent to the occupation the applicant seeks, climbing and crawling may require checking. In high amputation cases involving balance, even walking, jumping, running, stooping and crouching may be affected and wet, slippery floors should be avoided. We have seen that persons with disabilities arising from arthritis should avoid wet, cold surroundings or those subject to sudden temperature changes. Other conditions that might require evaluating are: heat, cold, humidity (both of which may affect comfort in wearing artificial appliance) and vibration.

C. Defects of Legs

1. *Amputation or Congenital Absence of Some or All Parts of Leg*

a. Not all amputations or absence of parts result in a handicap. The loss of one or two toes, with the exception of the big toe, where there is no effect on balance, does not require Selective Placement.

b. The interviewer should note which leg is affected and to what extent (about how many inches below or above knee or ankle joint). Other factors being equal, the higher the amputation, the more difficult is the power of locomotion even with a well-fitted appliance.

c. Persons with artificial legs have greater opportunities (other factors being equal) than persons using one or two crutches. Some people with a leg amputation and a well fitting appliance may even walk without a perceptible limp. Others who do not adjust as well may have a marked limp or use a cane in addition.

Artificial legs are built with toe, ankle and knee action so that a person skillful in the use of his appliance loses as little capacity as possible.

2. *Other Disabilities of the Hip and Legs* (rigidity, flaccidity, tremor, dwarfing, enlargement of joints, twisting, wasting of some parts) (also see section on neurological disorders).

a. These disabilities are for the most part easily recognized either as the applicant approaches the interviewer's desk or in the way he stands or sits. The interviewer will note carefully the degree of limping, if any (slight, moderate, marked) or any other peculiarity of gait (scissor-walk, walking on toes, etc.).

b. Braces may be worn to strengthen a leg, or a built-up shoe may be worn to balance both legs. In either case, the device helps restore function and the interviewer should evaluate the capacity of the applicant as he has adjusted to the appliance.

c. Flat feet or fallen arches should be considered a handicap only when they require a person to change

occupation. Some doctors feel that 99 percent of people with this condition have no limitation of function if they secure properly fitted arches.

3. *Evaluation of Work Capacity*

Allowing for differences in individual adjustments, the interviewer after examining skills, interests, and education will give consideration to the following items for applicants with leg limitations:

a. Walking, jumping, running, balancing, climbing, crawling, standing, turning, stooping, crouching, kneeling.

b. Sitting may be difficult for some persons with stiff knees, especially if they have to sit in cramped quarters.

c. Reaching, throwing, lifting, carrying, pushing, pulling should be examined if the person must lift, throw or reach while standing.

d. Heat and humidity as explained above, both affect comfort in wearing artificial limbs and braces; wet (slippery) surroundings; vibrations.

D. *Back and Spinal Defects*

The spinal column is the fundamental part of the axial skeleton. It supports the head, trunk, upper extremities, partially supports the visceral organs and transmits the weight of all of these parts of the body to the pelvis and lower limbs.

1. *Spinal Curvatures*

a. See Section A 3 d for curvatures due to tuberculosis of the spine.

b. Some curvatures acquired in early childhood may be a handicap in appearance only, if no functional ability has been lost and no support (corset, brace) is needed.

c. Evidence of curvature is any of the following:

(1) Protrusion of spinal column (technically called kyphosis and colloquially called humpback). There may be sometimes a heart involvement and endurance tends to be limited.

Uneven shoulders, one being wider and higher than the other.

(3) Uneven waistline or hips, one side being larger than the other.

(4) Head apparently resting on shoulders, with neck not showing [(2), (3), (4) are lateral curvatures or scoliosis].

2. *Back Sprains or Disabilities*

a. Wry neck (torticollis) is a contracted state of the muscles of the neck, usually fixing the head in an unnatural position and limiting ability to turn the head. Appraisal of work capacity for an applicant with wry neck should include an estimate of how well or fast he can turn (he may learn to turn his body if he can not turn the head).

b. Stiffening of the spine due to arthritic changes will necessitate elimination of jobs with conditions which aggravate the arthritis (dampness, sudden temperature change, humidity) in addition to examination of the degree to which the applicant can stoop, or turn.

c. Sacroiliac sprain affects the lower joint where the spine joins the pelvic bone. Strain can be minimized by the wearing of a belt in which case Selective Placement is not required unless the applicant reports pain or poor adjustment. When a belt is not worn, Selective Placement is required only if the applicant must change his occupation, or must avoid bending and weight-moving activities in his usual occupation.

d. Lumbar region sprains affect the waistline area, which is sensitive to every muscular action of the

body. These sprains, especially if unrelieved by belts, may lower capacity for weight-moving activities considerably (lifting, carrying, pushing, pulling, throwing).

Sudden twisting or wrenching of a joint whereby ligaments tear or are separated from their "moorings" is known as a sprain.

3. *Evaluation*

Again recognizing the varying ways in which different individuals adjust to similar disabilities, the interviewer should consider for each applicant with back or spinal defects:

a. How long and how intensively he can perform the following activities without undue fatigue: standing, sitting, lifting, carrying, pushing, pulling, throwing, walking, jumping, running, balancing, turning, stooping, crouching, kneeling, climbing, crawling, and reaching. The list is advisedly long since, as pointed out before, the spine is the key part of the axial skeleton through which channels arm and leg weight and motion.

b. Pertinent environmental restrictions such as cramped quarters, vibration, sudden temperature changes, dampness, and humidity.

III. RESPIRATORY HANDICAPS

A. *Pulmonary Tuberculosis*

1. *Definition*

Pulmonary tuberculosis is a disease which affects some or all parts of the lungs. The germ may come from without, or it may be dormant and then become active after any length of time. A chest X-ray and demonstration of the germs in the sputum indicate the presence of tuberculosis.

2. *Types of Treatment and Their Relation to Ultimate Employment*

a. Rest therapy.

Complete rest in bed may serve under proper medical care to arrest a very limited tuberculosis case or may be the only treatment used because the disease was so advanced when recognized that other treatment was not feasible. Thus, medical reports for applicants who have had only rest therapy may show either very little limitation of activity or considerably lower capacity.

b. Collapse therapy

Collapse therapy is treatment given where necessary and feasible in addition to rest therapy to immobilize a lung so that it may heal more quickly. The most common forms are:

(1) *Pneumothorax:* injection of filtered air or gas between the diseased lung and the walls of the chest in order to close the cavity caused by the disease. This may be continued for years after the discharge of the patient and, except for periodic refills in order to maintain the collapse, the applicant may lead a fairly normal existence. These cases are sometimes described as "arrested" only after the lung has been re-expanded. Generally speaking, the working capacity of an individual with a re-expanded lung is greater than that of one whose lung is still collapsed.

(2) *Thoracoplasty:* removal of parts of some or all of the ribs on one side in order to collapse the lung permanently or completely. The extent of removal may be great enough to constitute a secondary physical disability along orthopedic

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lines, such as the weakening of the torso due to such rib removal.

3. *States of Pulmonary Tuberculosis*

Medical authorities are agreed that pulmonary tuberculosis can at least be made inactive in varying degrees. The active state is so described only to show how the inactive states differ from it.

a. Active (improved, unimproved)

(1) Sputum is almost always positive.
(2) Lesions as shown by X-rays are not healed (cavity, if any, not closed).

b. Quiescent

(1) Sputum, if any, may or may not be positive.
(2) Lesions as shown by X-rays are stationary or are continuing to heal (retrogressive). Cavity may be present.
(3) These conditions have existed for at least 2 months.

c. Apparently arrested

(1) Sputum has become consistently negative.
(2) Lesions are shown by X-ray to be stationary or apparently healed; no evidence of open cavity is present.
(3) These conditions have existed for a period of 3 months.

d. Arrested

(1) Sputum is consistently negative.
(2) Lesions, as shown by X-ray, have healed; cavity, if any, is closed.
(3) These conditions have existed for a period of 6 months.

e. Apparently cured

(1) Sputum is negative.
(2) Lesions are stationary and apparently healed, as shown by X-ray.
(3) These conditions have existed for a period of 2 years under ordinary conditions of life.

A considerable percentage of apparently cured persons, particularly those who have fulfilled the listed requirements for 6 years may, in regard to their survival expectancy (as to tuberculosis), reach normal standards.

4. *Reports*

Reports should be secured from doctors, if possible, for applicants known to have had pulmonary tuberculosis without prolonged history of satisfactory employment, applicants who have had a spontaneously collapsed lung, and also for applicants who do not admit tuberculosis but state they have had a rib operation (thorocoplasty).

The report should be based on an examination within the last 3 months and should be stated in physical capacities terminology. If this is not obtainable, the report should at least state the stage of the disease, how long it has been inactive, the condition of the sputum, the number of hours the applicant may work per day, and the number of days per week.

5. *Standard of Placeability*

In most States persons with communicable diseases may not be legally employed until the condition is cured or arrested. Consequently, no applicant with active tuberculosis should be placed by the USES. Persons in contact with tuberculosis cases (i. e. families or people closely exposed to tuberculous individuals) are served in the regular manner and are not considered physically handicapped.

Only persons in the quiescent, apparently arrested, arrested or apparently cured states, with negative sputum, and able to work 8 hours per day are considered placeable. In areas where part-time opportunities exist, industry may accept persons who have attained a work tolerance of 4 to 6 hours. Otherwise, such applicants might be more suitably served by sheltered workshops.

6. ***Follow-up*** (See Part I, sec. VI.)

7. ***Evaluation of Physical Capacity***

Recent studies based on wide samplings have begun to change thinking regarding the physical capacities of, and working conditions suitable for, ex-tuberculous individuals. Allowing for individual differences and the length of time the condition has been inactive, such people have successfully performed in jobs ranging from light to fairly heavy work and under conditions ranging from dry air and stable temperature to high humidity and great heat. There is no scientific evidence to show that the presence of dusts, other than inorganic dust such as silica in a free state predisposes one to pulmonary tuberculosis, although other respiratory ailments may develop, depending on the irritant. Silica in a free state is found in large crystals we know as quartz and it constitutes a major part of sand and sandy rock.

Some of the former restrictions imposed on old tuberculosis cases are unnecessary where the individual has good personal hygiene. The positive evaluation of the activities and conditions of work of each ex-tuberculous individual will thus measure, but not necessarily eliminate, the following factors: walking, jumping, running, climbing, crawling, standing, turning, crouching. Activities involving extensive use of the chest muscles will be examined carefully, especially in thoracoplasty cases, for which such activities should be markedly limited: reaching, carrying, lifting, pushing, pulling, bending. Obviously, the presence of silica dust, temperature changes, wet surroundings, humidity and heat should be examined too.

The recommendation "light, out-door work", still sometimes given for ex-tuberculous patients, is not to be considered an adequate one. As a matter of fact, most tuberculosis specialists now maintain that exposure to the vagaries of the weather is undesirable and in-door work is preferable.

An important thing to remember is that ex-tuberculous people should avoid jobs producing general fatigue and great mental strain. It is generally preferable to place the recently discharged applicant in his previous occupation if his capacity and the working conditions permit. If a change of occupation is required, work should be sought which utilizes as many of the elements and conditions of past experience as the applicant can still handle, in order to minimize anxiety and fatigue in learning a new job in new surroundings.

Because an ex-tuberculous person may have a reactivation of the disease for some time before he or anyone else becomes aware of it, doctors disapprove jobs involving close personal contact with others such as barbering, teaching, or attending children or handling food. However, cases that have been arrested a long time, or more recent cases subject to close and frequent medical check-up are now considered employable in these jobs.

B. *Other Respiratory Diseases*

1. ***Silicosis***

Silicosis, which may predispose one to pulmonary tuberculosis, also requires placement of the employable applicant in surroundings free from silica dusts. It is regarded as incurable and found chiefly among workers engaged in mining, quarrying, the ceramics industry, tunnel construction, sandblasting, and foundry work.

2. ***Asthma***

Asthma is an intermittent labored breathing with wheezing cough and sense of constriction. Asthma is really an interference with the free flow of air in and out of the chest.

The muscles of the bronchial tubes contract and limit the amount of air going through these passages to the lungs. Thus, the sufferer either works harder to get air into the lungs, or else the composition of the air must be changed to ease the burden on the individual.

The causes of asthma may be either the inhaling of a specific irritant, to which the individual is particularly susceptible, or it may be a bacterial invader. The lowering of capacity depends on the extent of air limitation. A physical capacity report should state type of asthma (there are several), cause, if known, and specific capacities. Where the report reveals the specific irritant, the interviewer will be sure to place the applicant in jobs or surroundings free of that substance (feathers; flour, for those with baker's asthma; certain chemicals; specific plant pollens, etc.).

While capacity and type of surroundings will vary for individuals, most asthmatics should probably avoid exposure to dampness, cold, sudden temperature changes, dust or fumes. Activities which tax the breathing apparatus should be minimized, such as running, climbing, excessive weight-moving activities, and the like.

3. *Chronic Bronchitis*

Chronic bronchitis is a long-continued inflammation of the bronchial tubes. Some persons with this condition may have work capacity more circumscribed than others. A physical capacity report, if secured, should be in the same terms as for asthma; the general limitations will also tend to be similar. The report should also specifically indicate whether pulmonary tuberculosis enters the picture. Persons who have had acute bronchitis are not regarded as handicapped since such an attack is usually of short duration and, after recovery, the applicant may return to his regular employment.

4. *Miscellaneous*

Chronic pulmonary empyema, pulmonary emphysema, and bronchiectasis are other respiratory ailments which may curtail the breathing capacity of an individual and so limit his capacity for any strenuous activities. As in extuberculosis cases, cold, wet, humid, uneven temperature surroundings should be avoided, as should exposure to bronchial irritants such as dust and fumes; and, of course, reaching, pushing, and similar chest straining activities are curtailed.

IV. CARDIOVASCULAR HANDICAPS

Heart disease, contrary to popular belief, affects young as well as old people. Placement workers should know, however, that the normal heart has large powers of reserve, and that even a damaged heart can usually carry on its work for a long time. If a cardiac person exercises caution and works within the limits of his endurance at a suitable job, his years of usefulness should be long. Most heart cases coming to the employment office are of the rheumatic type, the group for which generally the best prognosis can be given.

A. *Function of the Heart*

The heart, a four-chambered muscular organ, pumps blood to all parts of the body. The blood carries nourishment and oxygen to all organs, and carries away waste products for excretion.

To propel the blood through the body, the heart contracts rhythmically at a rate of about 70 to 75 times a minute in adults. Each contraction (systole) lasts about three-tenths of a second, and is followed by a period of rest (diastole) lasting about one-half of a second.

The pressure exerted by the heart in forcing the blood through the arteries is measured in terms of millimeters of mercury. The pressure of the blood during contraction is known as systolic pressure, and the pressure during rest is known as diastolic pressure.

Normal systolic pressure for men between the ages of 20 and 40 is about 120; for women, about 113. The normal range

for both men and women is from 100 to 140. There is a common misconception that normal blood pressure is equal to 100 plus one's age. Systolic pressure above 140 is sometimes considered above normal, but the presence of hypertension at age 40 and over is so common that a mild degree, and perhaps even a "moderate" degree, can no longer be considered abnormal. Normal diastolic pressure for men is about 75 mm. and for women about 70 mm.

B. Cardiac Diseases

1. *Rheumatic Heart Disease*

This is caused by rheumatic fever, which tends to attack people under 30 years of age. The cause of the fever is unknown. Rheumatic fever tends to recur, with inflammation and pains in the joints and with additional damage to the heart each time.

After the acute infection subsides the heart muscles may be left in a weakened state, in which case unduly fatiguing activity should be avoided.

The valves connecting the four chambers of the heart may become scarred or partially fused as a result of rheumatic heart disease thus hindering somewhat the smooth flow of the blood. Valvular defects cause a greater burden to be thrown on the heart, which has to pump faster or with greater force in order to supply sufficient blood to the body. Compensation for the added burden takes place by an enlargement of the heart chambers and by a stretching of the heart muscle beyond its normal dimensions.

Limitations:

Persons with valvular defects of rheumatic origin, or with congenital defects, are especially susceptible to acute bacterial infections of the lining or the valve structure of the heart. While physical activities which may be undertaken by such persons may be great, they should not add up to undue exertion or fatigue which will lower resistance to respiratory infection. Working conditions conducive to cought and catarrh—therefore to be avoided—are sudden temperature changes, damp surroundings, dust-laden atmosphere.

2. *Hypertensive Heart Disease and Work Capacity*

Hypertensive heart disease is a constant and prolonged increase in an individual's blood pressure which has caused or is causing structural lesions both in the heart and in the vascular system. It usually occurs in people over 40 years of age.

Hypertensive heart disease is accompanied by a gradual hardening (sclerosis) of the arteries accompanied by enlargement of the heart chambers and muscle. This particular cause of heart disease may markedly lower an applicant's capacity for work in high or cramped places, or in great heat, and for activities closely related to dizziness (stooping, climbing, crouching, kneeling, balancing, throwing, turning, crawling, jumping). Work involving the safety of other people or of valuable property might be avoided.

3. *Coronary Disease and Work Capacity*

A coronary disease is any cardiac disability caused by an inadequate supply of blood to the heart muscle itself (myocardium). This inadequacy generally results from hardening of the arteries (arteriosclerosis), found usually among people over 50.

a. In come advanced cases, degeneration in arterial walls helps develop clots (thrombi) which cut off the blood supply. This is coronary occlusion of coronary thrombosis.

b. Individuals may recover enough capacity after a coronary attack to return to work, but not to heavy activities as a rule. It would be most desirable to place them where subsequent attacks will not expose other workers or valuable property to damage, and in jobs where they do little or no stooping or bending.

4. *Syphilitic Cardiovascular Disease*

Syphilitic cardiovascular disease is a damaged or infected condition of valves of the heart or of the lining of the arteries as a result of syphilis. It is generally found among men past 40 years of age who have a history of syphilis. Individuals with this type may be greatly limited in occupational capacity.

Persons with this disease should not work in areas of toxic exposure, in extremely hot or extremely cold temperature, or under abnormal atmospheric pressure as found, for example, in tunnel construction. Nor should they engage in too strenuous physical exertion as in constant carrying or pushing of great weights.

5. *Heart Murmurs*

There are abnormal sounds, but may or may not be symptoms of genuine heart disorder. A person can have a murmur or irregular rhythm and, if there is no organic defect, he is perfectly normal.

6. *Reports*

Reports from doctors based upon an examination within the last 6 months for all applicants who indicate a heart condition, will be helpful in placement. The report should show (*a*) cause (*b*) specific impairments (each of which gives rise to different sets of limitations) and (*c*) work capacity left, preferably in physical capacities terminology.

7. *Classification of Organic Heart Disease*

In some areas, where clinics and doctors are familiar with the classification of organic heart disease devised by the American Heart Association, the report can be based on this classification. The *functional* grouping is based on certain physical factors, and upon the amount of activity a person can, or thinks he can, perform without developing shortness of breath (mouth-breathing) and pain in the chest. The *therapeutic* grouping is virtually the doctor's prescription for the amount of physical activity which is permissible. This classification is based both on the amount of effort possible without discomfort and also upon the nature and severity of the organic defects and the prognosis. Obviously, then, therapeutic classifications are more significant for good Selective Placement.

a. Functional capacity

Class I. Patients with cardiac disease and *no limitation of physical activity.* Ordinary physical activity does not cause discomfort. Patients in this class do not have symptoms of cardiac insufficiency, nor do they experience anginal pain.

Class II. Patients with cardiac disease and *slight limitation of physical activity.* They are comfortable at rest. If ordinary physical activity is undertaken, discomfort results in the form of undue fatigue, palpitation, labored breathing or anginal pain.

Class III. Patients with cardiac disease and *marked limitation of physical activity.* They are comfortable at rest. Discomfort in the form of undue fatigue, palpitation, labored breathing or anginal pain, is caused by less than ordinary activity.

Class IV. Patients with cardiac disease *who are unable to carry on any physical activity without discomfort.* Symptoms of cardiac insufficiency, or of the anginal syndrome, are present, even at rest. If any physical activity is undertaken, discomfort is increased.

b. Therapeutic classification

Class A. Patients with cardiac disease whose physical activity need not be restricted.

Class B. Patients with cardiac disease whose ordinary physical activity need not be restricted, but

who should be advised against unusually severe or competitive efforts.

Class C. Patients with cardiac disease whose ordinary physical activity should be moderately restricted, and whose more strenuous efforts should be discontinued.

Class D. Patients with cardiac disease whose ordinary physical activity should be markedly restricted.

Class E. Patients with cardiac disease who should be at complete rest, confined to bed or chair.

Potential: Patients in whom no cardiac disease is discovered, but whose course should be followed by periodic examination because of the presence or history of an etiological factor which might cause heart disease.

Possible: Patients with symptoms or signs referable to the heart, but in whom a diagnosis of cardiac disease is uncertain.

8. ***Evaluation***

With the classification as a guide and some knowledge of limitations gleaned from the foregoing descriptions, the interviewer (until such time as doctors make out reports in specific terms of physical activities and suitable working conditions) should attempt to evaluate each applicant in terms of his work capacity and most suitable working conditions. For example, the applicant classified C may be able to work only a few hours a day, or only near home so that traveling is minimized. In small communities where work and home are adjacent to each other such applicants are fairly readily placed if the occupation does not involve standing or exerting activities like pushing and carrying. Individuals in III–C are doubtfully employable and will have to be especially carefully evaluated. Young persons under 25 with potential or possible heart disease will be accorded Selective Placement in order to guide them into occupations where there will be no undue strain on the heart.

General limitations not previously specified, but which may well be checked in appraising an applicant are:

Crawling, running, climbing: Shortness of breath in these activities will indicate how much of each he can do.

Lifting, carrying: How much and how often can person lift without having to gasp for breath?

Walking: How far and how long can he walk without discomfort[

Reaching, pushing, pulling: How often can he reach forward with his arms? How often can he reach up with both arms?

High places, moving objects, mechanical hazards: These conditions are undesirable, on the whole, for cardiacs with limitations beyond I A.

Since cardiacs should avoid anxiety, worry and irritation such as may arise in hazardous or unpleasant working conditions, they should avoid occupations involving such factors as mechanical and electrical hazards, toxic fumes, explosives and exposure to burns, etc. Secondary, but none the less important, job factors that should be analyzed for cardiacs will be time and transportation to and from the job, and presence or absence of elevators at the job location.

9. ***Follow-up*** (See Part I, sec. VI.)

C. *Diseases of the Arteries and Veins and Their Effect Upon Work Capacity*

Cardiovascular diseases include not only those primarily affecting the heart but also those that affect the arteries and veins and interfere with proper circulation of the blood.

1. ***Thromboangiitis Obliterans*** (Buerger's Disease)

This is a chronic condition found almost exclusively among men in which inflammation develops in the arteries

which may cause a block or occlusion that shuts off the blood supply and cause gangrene. The disease usually attacks toes first. Medical reports should be secured wherever possible. Continuous walking and standing and other activities that may be performed while walking or standing (pushing, carrying, etc.) may be greatly limited because of intermittent pain.

If not checked, first minor then major amputations may become necessary. The work capacity of persons with *amputations* due to Buerger's disease is treated in the section on orthopedic handicaps.

2. ***Varicose Veins***

This is a condition in which the veins, especially of the legs, are enlarged, elongated and twisted. Since the degree of severity varies, applicants with varicose veins will be considered handicapped only when the condition for the experienced applicant necessitates a job change or guidance into work not calling for activities such as standing, walking, climbing and crawling.

3. ***Phlebitis*** (milk-leg)

This is a condition of clotting in the veins and of varying degrees of inflammatory change in the walls of the veins. Attacks tend to recur and, after several acute attacks, a chronic venous insufficiency usually develops. Limitations are similar to those for varicose veins.

4. ***Essential Hypertension*** (high blood pressure)

Essential hypertension is a higher than normal blood pressure occurring without demonstrable cause. This condition is variable and occurs with a high degree of frequency chiefly among people over 40 years of age. Arterial hypertension can exist with or without heart disease. It is desirable to secure reports from doctors for all applicants reporting high blood pressure to check on the possibility of cardiac involvement. Selective Placement will be accorded (1) those who do have heart trouble (in which case the condition is no longer essential hypertension, but hypertensive heart disease) and (2) those who do not have heart trouble but (a) who should change to lighter occupations or (b) whose job opportunities are limited by arbitrary standards developed by some companies in the area served.

According to the U. S. Public Health Service *Manual of Industrial Hygiene*, "save in infrequent instances, such as the jobs of CRANE OPERATORS, LOCOMOTIVE ENGINEERS, or other special occupations, most persons with moderate degrees of arterial hypertension should be regarded as employable." Limitations for applicants with high blood pressure are similar to those indicated in the discussion of hypertensive heart disease, but may not be so marked.

5. ***Hypotension*** (low blood pressure)

Low blood pressure is a manifestation of an abnormal bodily state, not a disease itself. (In many persons low blood pressure is compatible with perfect health and some such people even possess great bodily vigor and stamina.) Consequently, if an applicant who seems handicapped speaks only of low blood pressure, it is well to question him further to discover whether the basic condition is a chronic disease (e. g., diabetes, syphilis, asthma, pulmonary tuberculosis, etc.), a chronic infection, or a constitutional condition like hypothyroidism.

V. VISUAL HANDICAPS

Visual function may be impaired through any one or combination of the following:

1. *Diseases*

These may cause an opacity or other defect which blocks or blurs the light rays as they enter the eyeball, or they may destroy the power of the retina and optic nerve to receive the visual image and carry it to the brain.

2. *Defects in the External Muscles of the Eye*

These defects may cause double vision (diplopia) or loss of vision through disuse in the faulty eye and disturbance in depth perception.

3. *Defects in the Shape of the Eye*

These may cause errors of refraction.

A. Eye Diseases and Work Capacity

1. *Conjunctivitis*

Inflammation of the transparent mucous membrane lining the eyelids and covering the eyeball.

Selective Placement is needed if a chronic condition limits the applicant's ability to work in hot, humid, dusty, or dirty surroundings to which he had been accustomed.

2. *Scleritis and Keratitis*

Inflammations of the outer layer or coat which may leave scars that block and blur entering light rays. The interviewer will need to determine how extensive the applicant's remaining field of vision is (see E 2 below).

3. *Choroiditis*

Inflammations of the middle layer or coat of the eye may impair vision by atrophy or throwing off of foreign nontransparent matter into channels through which light rays must pass.

4. *Cataract*

Any opacity of the lens or its capsule. The lens is a transparent body, biconvex in shape, suspended just behind the transparent cornea. The lens focuses light rays to form a perfect image in the retina. Naturally, opacity will limit vision. Sometimes the lens is removed entirely and strong convex glasses are prescribed to replace the refractive power lost by removal of the lens.

5. *Diseases of the Retina*

a. Retinitis

Inflammation of the inner coat of the eye. Retinitis may result in some degree of atrophy of the retina with considerable impairment or absolute loss of vision. It is also apt to affect both eyes, since the cause is constitutional.

b. Retinitis pigmentosa (a form of night blindness)

Formation of pigments in the retina. Most doctors believe this to be progressive. It is accompanied by cuts in the field of vision. Night vision is relatively more impaired than day vision. Day vision will eventually be affected too. Thus in determining if a job is suitable for an applicant with this disability, the interviewer will particularly check whether it calls for frequent passing from light to dark areas on the job, or for working under poor illumination.

c. Nerve conditions

(1) *Optic neuritis:* An inflammation of the optic nerve. Prognosis is apt to be serious.

(2) *Optic atrophy:* A slow chronic and *progressive* condition or degeneration growing from cerebrospinal diseases. Exposure to toxic conditions should be avoided as they make the optic nerve more vulnerable (as in exposure to lead fumes).

6. *Glaucoma*

Chronic or acute tension or pressure within the eyeball as the exits of the fluid are blocked. Prognosis tends to be guarded for chronic cases, although the condition may be arrested. It is important to determine what field of vision is left. The State vocational rehabilitation agency may be able to arrange for operation to arrest the condition. Because glaucomons persons should avoid emotional upset and excitement, they should not be exposed to particularly hazardous conditions, such as explosives.

Where vision is blurred or blocked out in certain areas interviewers will need to evaluate many physical activities in which the applicant's capacity may be limited by the above-mentioned diseases, since vision is often used to guide the movements of body and hands.

Walking, running, jumping, climbing, balancing, for example, as well as simple seeing, should be considered in the physical appraisal. Exposure to moving objects should be carefully examined to determine whether the moving parts come into the field in which vision is normal. The individual prognosis must enter into any evaluation of capacity because some sighted applicants must be guided into occupations they will be able to follow if they lose all vision (as may happen in scleritis, glaucoma, retinitis, optic atrophy, some inflammations of the middle coat). Even where ultimate blindness is not the prognosis, the interviewer may have to distinguish between what an applicant *can* do, and what he *should* do. The latter tends to be less than the former.

B. Defects in the External Muscles of the Eye

Each eye has six external muscles which enable it to turn up, down, right or left or in a circular movement. It is necessary that the two eyes move in coordination so that the separate images received by each eye are fused into one. If the two eyes do not act in unison, the images cannot be fused into a single image, and as a result, there may be impairment of depth perception and even double vision (diplopia). The confusion of double vision is often involuntarily overcome by a mental suppression of the image perceived by the deviating eye.

Strabismus or squint ("crossed eyes"): a turning in or out of one or both eyes. Adults who have acquired a squint (as from a head blow) do not lose vision in the deviating eye, but depth perception may be impaired.

C. Defects in the Shape of the Eye or Parts of the Eye

1. *Far-sightedness* (hyperopia)

In the far-sighted eye, short from front to back, rays focus *behind* the retina. The lens adjust easily for *distance* vision but undergoes great strain in accommodating near objects. Full correction may not be practicable for high degrees and so some loss of acuity may persist after correction. On the whole, very few far-sighted applicants will require Selective Placement.

2. *Near-sightedness* (myopia)

The near-sighted eye, too long from front to back, causes the lens to focus rays in front of the retina on a blurred image.

Some causes of high myopia (great correction required) are progressive—a disease rather than merely an error of refraction. Glasses may be unable to correct vision to normal range and there may be destructive changes in various parts of the eye (choroid, retina, vitreous). There may also be a restriction

in the field of vision. In some cases all close work may be forbidden. In addition, high myopia tends to rule out strenuous activities (heavy lifting, pushing, pulling, jumping, or running) which might cause detachment of the retina (blindness).

D. *Miscellaneous Defects*

1. *Color-blindness*

This is not a disease but an imperfect functioning of the retina which leads to color blindness. The most common type is red-green loss, i. e., inability to distinguish between the two. The condition is usually congenital and affects males almost exclusively. Applicants with color-blindness require Selective Placement only when color discrimination is a necessary part of the job sought and a substitute means of distinguishing must be found.

2. *Nystagmus*

This is a continuous jerking movement of the eyeball due to a nervous twitch. It is usually associated with congenital disease, or may develop from constant exposure to poor lighting. Vision may be impaired because the eyes cannot remain still long enough to *focus* on an object. Work requiring steady directing of eyes on one spot may be unsuitable.

E. *Measuring the Functional Efficiency of the Eye and Relation to Selective Placement*

1. *Acuity and Evaluation*

Placement of persons with a visual handicap depends upon the degree of vision after maximum correction, if correctable. The Snellen scale of graduated rows of letters is the one most frequently used to measure visual acuity. Persons are seated 20 feet from the chart. The normal person reads down to the line marked 20, this being represented at 20/20. A reading of 20/50 means that the tested individual sees at 20 feet what a normal sighted person sees at 50.

These notations are *not* fractions, although written in similar form. To convert Snellen quotations into percentage of visual efficiency the following table may be used:

	Visual acuity Snellen	*Visual efficiency in percent*	
	20/20	100	Normal (with best correction) unless corrected from 20/400 or worse.
	20/25	95.6	
	20/30	91.4	
	20/40	83.6	
	20/50	76.5	
	20/60	69.9	
	20/70	63.8	Impaired or defective vision (with best correction).
	20/80	58.5	
	20/90	53.4	
	20/100	48.9	
	20/120	40.9	
	20/140	34.2	
	20/160	28.6	
	20/180	23.9	
Industrially blind (with best correction).	20/200	20.0	
	20/220	16.7	
	20/240	14.0	
	20/260	11.7	
	20/280	9.8	Blind by legal definition in most States.
	20/300	8.2	
	20/340	5.7	
	20/380	4.0	
	20/400	3.3	
	20/500	1.1	
	20/600	0.6	
	20/800	0.1	

Percentage rating is often preferred as a measure of vision. Most States accept 20/200 or less in the better eye after maximum correction as the threshold of blindness. Defective vision requiring Selective Placement ranges from 20/70 (64 percent) to 20/180 (23.9 percent) with best correction in one or both eyes. Vision of 20/400 or worse corrected to normal range (20/20–20/60) should also be deemed a handicap because of the high myopia. Applicants with visual acuity of 49 percent or less are usually classified as industrially blind.

It is important that near vision be tested for those whose work is done at close range if they have scars on the cornea or, for any other reason, have

impaired *near* vision. Normally one holds printed or written matter about 14 inches away from the eyes in order to read. When persons wearing glasses do work requiring only near vision, and their near vision is normal with correction, Selective Placement is not needed.

20/70–20/100 in better eye (with correction): Range of jobs is very wide. Only such jobs as engraving, requiring close and continuous use of eyes, might prove unsuitable.

20/100–20/200 in better eye (with correction): Jobs in which vision is required primarily for guiding movements of the body and hands rather than inspecting the materials or objects. Examples:

Suitable Laundry Work

Shaker, Folder } In flatwork—finishing department of a laundry.
Body presser—shirt or blouse.
Packing, wrapping, shipping.

Probably Unsuitable Laundry Work

Inspector.
Hand-finisher or folder.
Weighing and reading from a scale.

20/120 or worse in better eye (with correction): Continuous work with written materials—as in stenography or bookkeeping—may strain the eyes too much. Typing from copy might be difficult for one with 20/100 or worse. Other clerical jobs such as duplicating-machine or dictaphone operator might be more suitable. Most outdoor jobs—skilled, semi- or unskilled—may be unsuitable. Workers in a construction gang, for example, may trip over something on the ground, stumble into a ditch or get hurt by a moving object.

As the visual loss approaches the threshold of industrial blindness, it becomes increasingly desirable that the person work either in a confined area (factory machine operator, salesman) or in an outdoor environment not involving danger (greenhouse or poultry farm).

2. *Relation of Illumination to Visual Acuity*

Adequate illumination has a direct bearing on the degree to which anyone gets maximum utilization of whatever visual acuity he possesses. Careful and extensive tests have proved that for best seeing the brightness of the surroundings should approximate the brightness of the task. All the brightness or darkness surrounding the work or printed matter on which the eyes focus contribute favorably or unfavorably to seeing conditions. A bright area of sky seen through a window or a glaring light on a dark wall not only reduces visibility but also may affect the ease of seeing to the point of tenseness and obvious discomfort.

Not only should the task and the immediate surroundings have almost the same brightness, but it is also important that when a job requires looking back and forth rapidly at different surfaces, the two or more surfaces involved should also be of equal brightness.

Exposure to constant glare may cause muscular tension in and around the eye, thus producing strain and fatigue. Persons with impaired vision and especially those whose eyes are very sensitive to light require the reduction of such glare, which may be accomplished by the use of shades and diffused light.

It is interesting to note that colors which reflect light with varying degrees of intensity, play an important role in illumination. For example, the use of lemon yellow, the most highly visible color, is helpful in marking dangerous parts of machinery or safety aisles.

3. *Visual Field and Evaluation*

Visual field is the total area perceived when the eyes are focused straight ahead. This comprises both the small area on which the eyes are focused for a sharp impression (central vision, measured in terms of visual acuity) and the larger area which is seen "out of the corner of the eye" (indirect or peripheral vision). Indirect vision registers on the outer or peripheral areas of the retina, is indistinct, but makes for convenience or

safety in any kind of movement or travel.

Persons with a cut in the *lower* field of vision may be able to get about well (they are said to have traveling sight) but they may be blind readers and are usually taught Braille. They bend their heads down in order to look out over the blocked-out area, much as some people try to look over the upper edges of their eye glasses. Persons with cuts in the *upper* field can travel alone (usually with head high) and have greater possibilities for work. Loss of one eye leaves a person with diminished peripheral vision. This may require change to occupations where work or moving objects do not approach from the blind side.

When the visual field is 39 percent or less with best correction, the individual in some States is classified as industrially blind even though central acuity may be high.

Defects in the visual field may be regular or irregular (even spotty) in pattern. The closer a defect is to the center of the field, the more serious it is.

4. *Muscle Function, Binocular Function and Their Evaluation*

a. Double Vision

See B above.

b. Monocular Vision

If one eye is blind, or the mind refuses to register images from a divergent eye, an individual has monocular vision. This monocular vision may mean, at least temporarily, loss of ability to judge distance, or of one's sense of third dimension. This sense or ability may be reacquired after about a year. During the interim period, persons so affected should avoid such jobs as chauffeur, crane operator, camouflage designer (jobs involving mechanical hazards, moving objects which come from wrong side, depth perception).

To protect the remaining eye in jobs exposing the worker to flying particles, the worker should wear some form of protection (goggles, helmet, etc.) if he is otherwise qualified to hold the job.

F. *The Blind*

1. *Classification*

Blindness is usually defined as starting at 20/200 in the better eye with maximum correction, or 38 percent or less remaining of visual field. The blind may be further classified as follows:

a. Totally blind.
b. Those with light perception, who can tell whence light comes.
c. 2/200 up to, but not including 5/200—those who see form or motion. They can count fingers held out 2 feet away.
d. 5/200 up to, but not including, 10/200—those who begin to have traveling sight, i. e., can get about unaided.
e. 10/200 up to, but not including 20/200—those who can read large headlines.

2. *Evaluation*

Mass production methods have increased the opportunities open to the blind and near-blind because of the extent to which operations have been broken down, simplified, and routinized.

Work capacities of the blind will vary as much from individual to individual as will capacities of the normal-sighted. Some, however, develop more highly the senses of touch, smell, and hearing in compensation, and thus increase their capacity in those fields. Since our definition of the blind includes those with traveling vision, any evaluation of a "blind" person will touch on virtually every item in the physical demands part of the schedule. Under working conditions, the following will be particularly checked: adequate lighting, mechanical hazards, moving objects, cramped quarters, high places, exposure to burns, electrical hazards, explosives, radiant energy, and working with or around others. Assistance in evaluation should be

sought whenever possible from agencies or commissions for the blind.

G. *Reports*

In all cases of apparently severe limitations, reports should be secured, if possible, from recognized opthalmologists, oculists or physicians specializing in the diseases of the eyes. This information should be in physical capacities terminology as far as possible, and, in addition, or in the absence of the foregoing, should show diagnosis, cause, acuity and field of vision, and prognosis (including a statement as to whether the condition is arrested or progressive). No report is needed for one-eyed applicants who have had an eye removed because of a penetrating wound, and whose vision in the remaining eye is good. Reports are desirable for those who have not had the removal, because of the danger of sympathetic blindness developing in the remaining eye. When applicants have lost the sight of an eye due to disease (with or without subsequent removal of the eye) a report should be secured because an incipient condition may exist in the other eye, no matter how long ago the applicant had the disease.

VI. MISCELLANEOUS PHYSICAL HANDICAPS

A. *Hernia*

1. *Definition*

A hernia is any protrusion of a loop or knuckle of an organ or tissue through an abnormal opening. The most common type is that associated with the groin, where a part of the abdominal content protrudes through the abdominal wall.

2. *Types*

a. Inguinal hernia is usually congenital, i. e., the protruding sac is present at birth.

There are, to a slight degree, *acquired* cases of inguinal hernia caused by weakness in the wall due to weakened muscles and old age. The protrusion may be caused by a long series of strains, but never by one strain. A weakened condition is always present first. Hernia may be double (right and left sides) and multiple.

b. Post-operative or incisional hernias come from the weakening of the abdominal wall due to previous operation (gall bladder, etc.)

c. Femoral hernias occur more commonly among women and may be corrected by an operation.

d. Umbilical hernia is one that rises through the navel. It too usually may be corrected by an operation.

3. *Reports*

Reports are secured from medical sources, if possible, in hernia cases only if the applicant is under treatment or has had recent treatment. The report is most desirable in terms showing how much abdomen-straining work is permissible in activities such as prolonged standing, walking, running, lifting, carrying, throwing, pushing, pulling, reaching, climbing, stooping, crawling, and the like.

4. *Placement*

Selective Placement is rendered only to those engaged in fairly strenuous nonsedentary work, or those whose occupations seem suitable to their condition but who are being rejected by employers by means of restrictive preemployment examinations. The physical restoration services of the State vocational rehabilitation agency should be suggested to applicants who meet the eligibility requirements.

5. *Work Capacity*

Limitations imposed on an applicant with hernia are hard to determine. He

must be guided in most instances by the amount of pain induced by the work he does.

a. Hernia and trusses

Some people find relief in the wearing of a belt or truss.

(1) Such persons with established trades which they have followed successfully for many years need not even be considered handicapped unless they seek to change their occupations.

(2) If a person wearing a truss is referred for heavy work (heavy lifting, pushing, pulling, carrying, etc.) the employer should be informed, since he or his compensation insurance carrier is liable for compensation claim if the condition should grow worse on the job.

(3) Wet, slippery floors, or work in high cramped places might well be avoided because of the danger of falling, slipping or otherwise causing undue abdominal strain.

b. Hernia and operations

(1) A successful operation for inguinal hernia means the applicant is usually better fitted for hard and heavy work than he was before because the operation removes not only the impairment but also its cause.

Applicants in this group will require Selective Placement only where employers reject applicants with any history of a hernia.

(2) Persons who have undergone successful inguinal hernia operations before they were 25 virtually never have a recurrence and present no problem.

(3) The length of time for recuperation after an operation depends on the age of the individual. Generally speaking a person may undertake light (seated or manipulative) work in 4 to 8 weeks and heavier work in about 3 to 6 months after operation for a single hernia.

B. Stomach Ulcers

1. *Definition*

Stomach ulcers are open sores, other than wounds, found in the stomach. Duodenal ulcers are found at the exit from the stomach or the beginning of the small intestine. Perforation (piercing of a tissue or part near the ulcer) may occur as a result of an injury. Stomach ulcers may often occur as a result of some deep seated emotional disturbance.

2. *Reports*

An interviewer may be able to dispense with a report from a medical source if the applicant knows his condition well and the interviewer elicits pertinent information as indicated in 3 below.

3. *Work Capacity*

It is interesting to note that in a random sampling of 4,700 Army medical discharges, stomach ulcers ranked second as a reason for discharge. There might well have been more releases on this basis if the Army had not discovered they could frequently cure many stomach ulcer cases by changing the man's job in the Army.[1] This seems to emphasize the importance of evaluating the following items:

a. Crawling, climbing: These may be unlimited for mild cases, partially limited for severe cases.

b. Pushing, pulling, lifting, carrying, throwing, jumping: These may be carried on to a slight or moderate degree depending on the individual. Heavy pushing, lifting, etc.

[1] National Association of Manufacturers, Panel Discussion, "Rehabilitation and Training for Postwar Employment," December 1943.

may tend to be the exception rather than the rule, particularly if the applicant is on a very bland, mild diet.

c. *Working speed:* Jobs which have a high working tempo and leave the worker excessively physically or emotionally fatigued, should be avoided.

d. *Odors:* Certain odors may be distasteful to some individuals and cause further gastric upset.

e. *Working with or around others or alone:* Because emotional upsets may aggravate gastric disturbances, it is especially important to secure an appraisal of the individual's ability to adjust to people.

f. *Other:* The frequency and regularity with which the applicant has to eat may require the interviewer to check such secondary job factors as:

(1) Meal hours.
(2) Rest periods (is there time to get diet food if needed).
(3) Eating facilities (can a man on the graveyard shift in a shipyard, for example, get his proper "breakfast" at 11 p. m.?).

C. Tumors and Cancer

1. Definitions

A tumor is a swelling, especially one due to growth of a tissue not normal to the part. A benign tumor is one not likely to recur after removal. A malignant tumor is one which is likely to recur and eventually to destroy life. Cancer (carcinoma) is a malignant tumor made up chiefly of epithelial cells (found in skin and mucuous membranes). Tumors or cancer may occur anywhere in the body (brain, breast, stomach, mouth).

2. Reports

Reports from medical sources should be secured, if possible, for all applicants who state they have a tumor or cancer, in order to show whether or not they may work. Persons with benign tumors accompanied by any limitations of activity will require Selective Placement only until such time as the tumor is removed.

3. Brain Tumors

In brain tumor cases, while operations are sometimes highly successful, there is rarely complete recovery as there are usually some residual symptoms left. Some of these may be:

a. Dizziness
b. Swelling of the optic nerve (with possible impairment of vision)
c. Speech or mental defects, etc.

4. Evaluation

Evaluation of work capacity consequently will involve checking those items pertinent to the particular residual effect (e. g., dizziness may rule out work in high or low cramped quarters). Referral to the State vocational rehabilitation agency should be considered for applicants requiring physical restoration.

D. Diabetes Mellitus

1. Definition

Diabetes mellitus is marked by (*a*) an inordinate and persistent increase in the urinary secretion and (*b*) an abnormally high sugar content in the urine. Excessive sugar also enters the blood stream. Untreated diabetes is attended by weakness, emaciation, gasping for breath, or even coma. Like Buerger's disease, diabetes may lead to gangrene and amputation of a limb, thus creating an orthopedic disability.

Diabetes, however, can be controlled by medication and diet. Insulin is introduced into the system to reduce sugar content and remove symptoms.

2. Reports

Reports from medical sources should be secured if possible.

3. Evaluation

a. Applicants with advanced, uncontrolled diabetes should not work

until such time as their condition improves.

b. Applicants who have diabetes with some involvement will be able to carry on with reduced activity. These are cases with histories of gangrenous coma, visual, neurological or cardiac involvement. See suggestions on work capacity listed under visual, neurological and cardiac disabilities and under amputations in the orthopedic groups.

c. Applicants who take their insulin and follow their diet faithfully do not require special aid in securing a job unless they encounter employer resistance, or unless their condition warrants change from heavier to lighter work.

E. *Venereal Diseases*

Applicants who have or have had a venereal disease are entitled to service on the same basis as any other applicants, namely, ability to perform a job without injury to themselves or others. The moral aspects of venereal disease are not the concern of the employment interviewer. Some employers do not hire persons with syphilis, gonorrhea, or other venereal diseases because of the mistaken idea that *all* persons with a venereal disease, whatever the stage, are infectious. The Venereal Disease Division of the United States Public Health Service and the State and local departments of health have not only made great advances in rapid treatment but also have substanially progressed in recent years in liberalizing public opinion relating to employment of workers with a history of venereal disease. Advice and assistance may be secured from the Venereal Disease Control Officer of the State or Municipal Department of Health whenever necessary or desirable in order to furnish employers with whom contacts are being made with accurate technical information which may reassure them as to the safety of employing non-infectious workers or otherwise correct their erroneous impressions. Rapid Treatment Centers under the sponsorship of United States Public Health Service, State and local authorities, are functioning in many communities to assist in the control of venereal diseases. It will be necessary in each local situation to determine which staff member of the Center carries responsibility for maintaining contacts with other agencies.

1. *Recognition of Applicants With Venereal Disease*

The applicants who frankly state that they have had syphilis or gonorrhea are relatively few. More often they will use circumlocutions, such as "I have bad blood." An eruptive skin condition may offer the interviewer an opportunity for tactful questioning to discover its cause.

Applicants referred by any Rapid Treatment Center staff member are more easily recognizable cases.

2. *Reports*

Reports from medical sources will be secured, if possible, to determine if the applicant is noninfectious and if there are any other involvements. All applicants sent for placement to USES by Rapid Treatment Centers are noninfectious. The Rapid Treatment Centers will send a physical capacities appraisal report only when:

a. The blood test is positive, but the condition is nevertheless noninfectious (as may happen with latent syphilis).

b. Temporary or permanent employment limitations are indicated.

c. Limitations exist because of other involvements (cardiac, neurological, visual, etc.

3. *Evaluation and Type of Service Rendered*

a. If the applicant is in an infectious stage, he should not be referred for work until it has been determined he has been made noninfectious. (NOTE: Syphilis patients become noninfectious after the

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first one or two treatments administered in the standard therapy. Gonorrhea is curable within 5 days with sulfa drugs and, when these fail, with penicillin in 1 to 2 days.)

b. If a person has a venereal disease in a noninfectious stage (and no cardiac or other permanent damage has ensued) he is employable and *does not require Selective Placement.* Workers with syphilis, however (in any of its stages), must not be employed in areas of toxic exposure while under treatment.

c. Workers with late manifestations of syphilis in the noninfectious stage are to be handled according to the body system most severely affected, e. g., heart (cardiac) involvement, locomotor ataxia, and other neurological complications, deficiencies of sight and hearing, etc.

d. Even though Selective Placement may not be required for noninfectious persons, it is important to point out that many persons referred from Rapid Treatment Centers and Venereal Disease Clinics may require counseling service to effect desirable ultimate placement.

F. *Kidney Ailments*

1. The kidneys are the two glandular bodies in the lumbar region which secrete body wastes in the form of urine.

Nephritis is an inflammation of the kidney which may come from a congenital defect, lead-poisoning, a specific germ or disease (such as scarlet fever). It may be acute or chronic. In some cases an entire kidney may be removed, thus increasing the burden on the remaining one.

2. Working capacity of such persons will tend to be lowered for continuous standing and activities performed while standing (pushing, pulling, lifting, carrying, throwing, reaching). As far as working surroundings are concerned, exposure to toxic conditions will be carefully investigated to avoid substances that might aggravate a kidney complaint. Some of these toxic substances are:

Aniline.
Benzol and toluene.
Carbon disulphide.
Carbon monoxide.
Chlorinated hydrocarbons.
Lead and its compounds.
Mercury and its compounds.
Nitrobenzol and other nitro compounds of benzol and its homologues.
Phosphorus.
Radio-active substances and X-rays.
Turpentine.

G. *Glandular Disturbances*

The ductless glands of the body each secrete a specific product for a specific purpose. Functional disturbances may cause changes which affect the working capacity of an individual.

The following are the more common disturbances and their effect on working levels:

1. *Thyroid Ailments*

The thyroid gland is found near the windpipe in the throat and its secretion regulates bodily development.

a. Hyperthyroidism (toxic goiter)

An easily recognized thyroid disturbance is hyperthyroidism (toxic goiter). Because of the overactivity of the thyroid gland, the eyes bulge markedly, the front of the neck looks swollen and the person tends to have quick, nervous movements. Persons who have been cured do not require Selective Placement.

Reports from medical sources should be secured, if possible, preferably in physical capacities terminology. When a report is not obtainable, the interviewer will evalu-

ate the applicant particularly with regard to:

Working speed: Undue pressure may aggravate the condition.

Sitting: One who is very nervous may be unable to sit for long periods.

Feeling, fingering, handling: Limitation will depend on extent of tremors, if any.

Lifting, carrying, pushing, pulling, throwing: Weight to be moved will depend on degree of emaciation.

Working with or around others, or alone: Degree of contact with others will enter into picture of mental pressure applicant can take.

Exposure to cold and sudden temperature changes: Dependent on how much applicant sweats.

b. Hypothyroidism (myxedema)

This disease is marked by under or perverted secretion of the thyroid gland. It is most commonly found among women of middle age and characterized by a sensitivity to cold, lack of energy, slow speech, and slow comprehension. Consequently, exposure to cold will be avoided as will strenuous activities such as continuous lifting, pushing, climbing, undue working speed, and the like.

c. Dwarfs and midgets

Midgets are persons small in stature but normally proportioned for their size. This condition is the result of a thyroid disfunction. Dwarfs are also small, but have disproportionate parts. It is the function of the interviewer to observe carefully and note whether arms, hands, fingers, legs, head, or torso are so out of proportion as to indicate some diminishing of capacity for all physical activities involving movement, posture, and touch.

Midgets and dwarfs can either capitalize on their lack of height by seeking work in cramped quarters which present no problem to them, or they can minimize their lack of height for work requiring standing by standing on a platform or box, or for work requiring sitting by sitting on a raised chair. In any case, it is wise to evaluate their reaching capacity for any manipulative or machine-tending jobs.

d. Giantism

Giantism is the opposite of dwarfism. Limitations are reversed here and the applicant and interviewer will try to find jobs in which height is an advantage.

2. *Obesity*

Marked overweight is considered a physical handicap only when it is due to glandular disturbance (such as under-activity of the gonads or pituitary or the thyroid glands) resulting in an appearance and functional handicap. Some plants will not employ people who are more than fifty pounds overweight.

H. *Tropical Diseases*

Tropical diseases are many in number and varied in their effects upon individuals. Those which are found in milder as well as tropical climates are included in other sections of this handbook (e. g., chronic conjunctivitis, skin diseases, encephalitis). In the following paragraphs on the chief tropical diseases likely to be encountered among World War II veteran applicants, emphasis has been placed upon the residual effects of each disease to assist in evaluating the individual's physical capacities.

1. *Malaria*

Malaria is a febrile disease caused by a parasite conveyed to the blood by the bite of certain kinds of mosquitoes. Two major types *have been acquired by the armed forces: (a) Acute malaria,* commonly called "malignant malaria," and *(b) Relapsing malaria,* more generally known as "benign tertian malaria."

The applicant should be questioned as to whether he has had a relapse of the attacks. If there has been no re-

lapse, or the applicant states that he had the acute type, he has probably had "malignant malaria." This would indicate that he has been treated and cured, and that there are no after effects or work limitations imposed upon him *other than those revealed by physical examination.*

If, however, the applicant states that he has had relapses of the attacks, or states that he had benign malaria, he may quite possibly have certain limitations of physical capacity.

Quinine or atabrine is extensively used in control of both types of malaria. In the case of *malignant* malaria, these drugs cure the disease. In the case of benign malaria, however, the drugs do not completely cure the condition, but materially cut down the acute phases in intensity and duration, and may prolong the intervals between attacks. Reports should be secured in physical capacities terminology, if possible.

Anemia and general debility are among the chief residual effects which may be the result of the blood changes caused by benign malaria. Whereas there should be no intensive pursuit of fatiguing activities, the individual is not an invalid. In other words, while lifting, carrying, pushing, climbing, running, and other similar activities need not be entirely limited, they should not be engaged in to the point of producing undue fatigue.

Malaria is apt to produce, in many instances, an enlargement of the spleen. Physical activities which might cause either a blow on the abdominal region or constant pressure on the stomach (such as leaning forward against a work bench all day) should be avoided so as to preclude the chance of possibly fatal injury to the spleen. Other persons who have benign malaria may be left with involvements of the kidney or heart, or emotional disturbances. Limitations associated with the particular system affected should be checked.

There is no scientific proof that persons who have had malaria are more susceptible to chronic bronchitis in the winter than others. However, exposure to chilling conditions (sudden temperature changes, wetness, etc.) or any other working conditions generally detrimental to health should be somewhat limited.

There is no way of predicting when a person may be subject to future relapses. The employer of a person who has benign malaria should understand that the employee may be incapacitated for periods of 1 or 2 weeks at irregular intervals because of recurrences of the disease.

In general, recurrences of benign malaria are decreasing in number among the men who have already returned, and the condition seems to be burning itself out after a period of about 2 years. This would indicate, if sufficiently proven in the future, that malaria does not constitute a permanent disability.

2. *Filariasis*

Filariasis is an acute disease characterized by attacks which cause pain, swelling, and redness of parts of the body, often the scrotum, and, in many instances one or several of the extremities. Because it has localized in the scrotum in many cases, it has often been mistaken for a venereal disease, but is not. Filariasis is a condition in which attacks recur at irregular, unpredictable intervals, causing severe pain of the part affected, and last from 3 to 10 days. The disease does not yield to any known treatment. Severity and frequency of attacks have been dimishing among infected individuals in the past few years.

During the acute attack, the individual is totally incapacitated, and the employer should understand that the worker may be unable to work for a period of 3 to 10 days at irregular intervals, whenever he has a relapse. There are no limitations of physical capacity or working conditions when the individual is not having an attack.

(Elephantiasis is a lymphatic condition which results from repeated exposure over a period of many years to

the parasite which causes filariasis. The United States Public Health Service states that there are no known cases of elephantiasis from this cause among our armed forces.)

3. *Diarrhea and Dysentery*

These two conditions are caused by amoebae and by certain bacteria. They are characterized by abdominal pain, constipation, and recurring diarrhea. The attacks vary in length, frequency, and intensity. There is no indication at present as to when the diseases will clear up entirely.

Persons who have had some types of diarrhea and/or dysentery may be carriers of the disease agent for some time. Since the organisms may be transmitted through the handling of food, it is imperative that these persons not be placed in a job situation requiring food handling until a thorough medical examination has determined that the person is free of parasites.

There are no other limitations of physical capacity or working conditions when the individual is not having an attack. There may be some minor general debility during and after an attack.

I. *Skin Diseases*

1. There are innumerable types of skin diseases (dermatosis). Some affect the skin only; others indicate the presence of additional disease. There is also inflammation of the skin (dermatitis) due to exposure to some irritating substance or temperature.
2. The interviewer will secure medical reports if possible, to determine:
   a. Whether the condition is contagious.
   b. Whether the condition is infectious.
   c. What the specific irritant is.
3. Persons who develop an occupational dermatitis (e. g., some printers get disabling rashes on their hands from handling the materials that clean the presses) will require Selective Placement only until they can build up experience in a new trade or can be placed in some phase of their former trade which does not involve use of the irritant.

J. *Cosmetic Defects*

The term cosmetic defects refers to appearance handicaps. Some may be functional, such as loss of one arm or thickened neck, as in goiter. These have been discussed elsewhere. There are some cosmetic defects, however, which do not reduce an applicant's level of function but do present a problem in placement because of employer or worker reaction to the appearance of the applicant.

Among such defects are:

1. Vivid, large birthmarks or scars on the face or hands.
2. Distortion of features.
3. Absence of all hair or eyebrows.

These defects are handicaps only for those seeking jobs involving public contact.

K. *Pregnancy*

With increased employment of women in industry, the problem of protection of the pregnant woman and her child has become more urgent. Even though the labor market rarely necessitates the recruitment or employment of pregnant women, many of these women may find it necessary to work. Basic requirements governing the Selective Placement of Pregnant women are detailed here as a guide.

In general, pregnant women can follow their usual occupations. Jobs including a variety of bodily movements are likely to be more suitable than production on jobs using limited physical activity. Occupations involving heavy lifting, hard labor, or continuous standng are unsuitable and workers should be transferred to lighter or more sedentary work.

Occupations that require a good sense of body balance, such as work performed on a scaffold or a step-ladder and occupations in which the accident risk is char-

acterized by accidents causing severe injury, such as operation of punch presses, power-driven woodworking machines or other machines having a point-of-operation hazard, are unsuitable.

Occupations involving exposure to toxic substances that exert an injurious effect upon the liver or kidneys should be avoided.

Analine.
Benzol and tulnol.
Carbon disulphide.
Carbon monoxide.
Chlorinated hydrocarbons.
Lead and its compounds.
Mercury and its compounds.
Nitrobenzol and other nitro compounds of benzol and its homologs.
Phosphorus.
Radioactive substances and X-rays.
Turpentine.

Pregnant women should not work on shifts including the hours between 12 midnight and 6 a. m. They should be employed not more than 8 hours per day nor more than 48 hours per week. If possible, the hours of work should be limited to not more than 40 hours per week.

Every pregnant woman should have at least two 10-minute rest periods during her work shift. This period should provide an opportunity to rest and to secure nourishing food.

Pregnant women should not be employed 6 weeks before delivery. If a woman presents a certificate from her attending physician to the effect that complications have indicated that continuing employment would be prejudicial to her health, no attempt to place her is made.

Many State labor laws specify the number of weeks after delivery which women should not be reemployed. Interviewers should become acquainted with the regulations for their respective States.

VII. NEUROLOGICAL HANDICAPS

A. *Physiology of the Nervous System*

The nervous system is the all-important messenger service of the body. Nerves carry impulses from outside stimuli to the brain. The brain interprets or "feels" the incoming impulses and sends out new impulses via the nerves, telling the body how to respond. These outgoing impulses travel to muscles, causing them to relax or contract. Thus the muscles move the bones to which they are attached and action or cessation of action occurs. For example, a flame touches your arm. The nerve ends in the skin pick up the impulse and relay it to the central nervous system. The brain interprets the impulse and sends a message along motor nerves to the arm muscles. These contract and pull the arm away from the flame.

Thus, the nerves govern sensation and motion. In the example given above, if the sensory nerves from the skin to the brain were cut or injured, you would not "feel" the flame even though your skin might be burning. If the motor nerve from the brain to the muscle were cut, you could not move your arm away at all (unless you moved your entire body); if it were only partly damaged, you might be able to move, but perhaps not quickly enough. Muscles which get no nerve "service" will atrophy. Those that get impaired service may either tense up too tightly, become flaccid through too much relaxing or act with delay.

B. *Neuritis*

1. *Definition*

Neuritis is inflammation of a nerve, usually resulting in loss of reflexes, function, or sensation. Neuralgia is simply acute pain in the nerve, with no loss. Persons with neuritis may lose their sense of touch in the fingertips and this loss of sensation may extend up the hands. Pain may accompany the

loss of sense of touch. If there is an involvement of the motor nerves, the muscles in the arms and legs may become weak, some even completely paralyzed.

Bell's palsy is neuritis of the motor nerve supplying the face. This should clear up in a few days or weeks. If it takes longer there may be residual symptoms (twisted mouth, one eyelid closed, etc.) which may limit function or constitute an appearance handicap.

2. *Reports*

The applicant's description of his condition will usually make successful placement feasible. Work capacity will depend on the extent of the disablement.

3. *Evaluation*

The interviewer will appraise pertinent items among the following: feeling, fingering, handling and all other activities involving the use of the hands (pushing, pulling, reaching, carrying, lifting, throwing) if hands are affected; walking, running, jumping, kneeling, standing, crouching, crawling if the legs are particularly affected; all the foregoing and stooping, running, balancing if the torso is affected.

C Encephalitis

1. *Definition*

Encephalitis is an infectious but not contagious inflammation of the brain. Prognosis is poor and 60–70 percent show permanent ill effects. These may be any of the following: tics, spasms, rhythmic tremors, clamping of jaws, chorea (St. Vitus' dance movements), nystagmus, narcolepsy (sudden attack of sleep), some forms of psychoses, conduct disorders, catatonia (rigidity of position).

2. *Reports*

Reports from medical sources will show how much working capacity is left.

3. *Evaluation*

There are no generalized work limitations for post-encephalitics since there is considerable variation in the residual effects.

D. Multiple Sclerosis

1. *Definition*

Multiple sclerosis is a disease marked by hardening occurring in sporadic patches throughout the brain or spinal cord or both. It is incurable, slowly progressive, but at an irregular pace, and may last many years. It is accompanied by some or all of the following symptoms: weakness, incoordination, jerking movements of the legs, and especially of the arms, abnormal mental exaltation, scanning speech, nystagmus, even temporary attacks of blindness, double vision, or blocked out fields of vision.

2. *Reports*

Reports from medical sources should show whether the applicant may work and, if he may, just how much he may be permitted to do.

3. *Evaluation*

Working capacity will be evaluated in terms of items pertinent to the applicant's particular symptoms (e. g. where field of vision is impaired, check activities where eyes are used to guide bodily movement—reaching, stooping, walking, etc.). It is interesting to note that this is sometimes known as Lou Gehrig's disease.

E. Convulsive Seizures or Epilepsy

1. *Definition*

Epilepsy is a condition marked by abrupt loss of consciousness, which may be momentary or prolonged, and is sometimes accompanied by convulsions.

2. *Type of Attack*

a. Grand mal (major seizures)

In this type, loss of consciousness is accompanied by convulsive move-

ments during which the person falls, becomes rigid, and has spasmodic jerking of the limbs. This lasts from one to several minutes and is usually succeeded by a deep sleep. In about one-half of the cases the loss of consciousness is preceded by warning symptoms which may permit the patient to lie down or seek seclusion.

b. Petit mal (minor seizures)

This form occurs only rarely in adults. The person merely loses consciousness for from 5 to 15 seconds but does not fall or have convulsive movements. Auras or warnings are infrequent. Such attacks are a handicap only in situations in which continuous attention is imperative, such as the operation of motor vehicles or elevators.

c. Epileptic equivalents (psychomotor seizures)

In this type, there is loss of consciousness for a few or many minutes but the person is able to maintain his balance and may act as though conscious, although without real purpose and with no recollection afterwards.

A person may be subject to more than one type of seizure. The greatest diversity exists in the frequency and severity of attacks. Like the symptoms of headache, recurrent attacks may be of no consequence or they may be incapacitating, hence each case must be judged individually.

3. ***Consequences***

60–80 percent of all epileptics are normal mentally and some have become very famous people—for example, Julius Caesar, Peter the Great of Russia, Byron, Dostoyevski, Flaubert, Swinburne, de Maupassant, Paganini. About 10 percent of epileptics who are outside of institutions are affected mentally, memory and reasoning powers being poor. About the same small proportion have difficult personalities, being stubborn, irritable, suspicious, and opinionated.

Between seizures, which may be days, months, or years apart, epileptics are as physically fit as the average worker. About three-fourths are fully capable of work and under normal conditions are employed, although often without the employers being aware of their liability to seizures.

Some patients have attacks only in sleep. In most persons, seizures are less likely to occur when the person is at work using his muscles or brain than when he is idle or sleeping. In recent years a new method of diagnosis (brain wave test) and a new medicine (dilantin sodium) have come into use. This medicine, when supervised by a competent doctor, keeps the majority of patients free, or relatively free of attacks.

4. ***Reports***

Reports from medical sources should be secured, if possible, for all applicants who state they have epilepsy. Some applicants, however, will attempt to conceal this fact The interviewer should be on the alert for reference to "spells," "fainting," "attacks" or expressions of fear of or distaste for work with moving machinery, especially when coupled with an erratic work history. Occasionally an applicant will present visible evidence of a recent attack in the form of bruised parts of the face or a scarred tongue. Reports should be secured, where possible, in physical capacities terminology. In addition, they should indicate:

a. Type, frequency, and duration of attack including any post-seizure, sleep, or stupor.
b. Whether applicant has any aura or warning.
c. Whether spell occurs at any set time of day or night (thus, an epileptic with night seizures only, is a pretty good bet for day work).

d. Whether any mental deterioration or personality change is present.
e. What medicine, if any, is being taken.

5. *Evaluation*

Epilepsy is related to physical capacity in the following ways:

a. Epileptics who have very frequent grand mal or psychomotor seizures at unpredictable hours should work only in special or sheltered workshops.
b. The type of spell alone is not a determining factor, for a person with grand mal who has only one seizure in 3 years is certainly capable of working.
c. Working conditions as a whole do not aggravate attacks unless the history of a case shows that seizures came when the person was under mental stress due to job pressure. Emotional tension and engaging in activities to a degree inducing excessive fatigue should be avoided.
d. Specific working conditions which most epileptics should avoid because of the danger of injury in an attack are: moving objects, high places, exposure to unprotected machinery, burns, and cramped quarters. Even these conditions need not be entirely eliminated for those epileptics who get sufficient warning of an attack to leave their work and lie down somewhere in the plant. About half of all epileptics get such an aura but it may not be reliable and there is always the possibility of a seizure with no aura.

Some consider it desirable to place epileptics in pairs so that one may attend the other (place person in reclining position and, if possible without forcing, insert object between the back teeth to prevent biting the tongue, put pillow or folded coat under head) in case of a seizure. In general, epileptics should be placed where they will not injure others should they have an attack.

There have been no reports based on actuarial experience indicating that epileptics have more accidents while at work than non-epileptics. As with other persons, the preferences and the aptitudes of the individual must be considered.

F. Cerebral Palsy

Cerebral palsy is a loss of power of voluntary motion or of sensation in a part due to some intracranial lesion of nerve substance. There are numerous types, only three of which are given below.

Many strokes are a form of cerebral palsy. Reports from a medical source should determine whether or not the applicant is employable. If he is employable, the report should show what the residual effects are and how they limit work capacity. Thus, spastic paralysis of certain parts (head, or arms, or legs, or any combination) may be a residuum of a stroke. Hemiplegia (paralysis of one-half of body from head to foot) is an illustration.

1. *Spastic Paralysis*

a. Definition

Spastic paralysis is paralysis marked by rigidity of the muscles and heightened tendon reflexes in many parts of the body.

While some persons have only a mild spasticity confined to just a few parts of the body, others have a more marked and widespread paralysis, even to a point where they become totally unplaceable.

Some of the outward evidences of spastic paralysis are: speech defects, grimaces, head movements, hand tremors (spastic handwriting is easily identified by its shakiness and uneven character), awkward position of arms or limbs and defective gait (scissor walk, walking on tip toes, shuffling, etc.). A spastic usually has a combination of some rather than all of the above char-

acteristics. Some may have head and facial defects only, others may have just arm and leg disabilities.

Because of their facial contortions and speech difficulties, spastics have erroneously been considered mentally defective in the past. Only a relatively small number are so affected, however. Many are very bright and achieve a good deal through sheer will power.

b. Reports

It is usually unnecessary to secure a report from a medical source for an applicant with spastic paralysis from childhood, since he can be easily evaluated by the interviewer.

c. Evaluation

Depending on the part of the body affected, the interviewer will:

(1) Observe gait as applicant approaches desk. Observation plus questioning should reveal how much standing, walking, running, stooping, turning, crouching, kneeling, crawling, climbing, balancing, jumping, if any, he can do. His balance may be precarious depending on degree of disablement. High or cramped working places, exposure to mechanical hazards and moving objects may be ruled out.

(2) Have applicant demonstrate ability to finger, handle, lift and carry objects by signing name, picking up and unbending a given number of clips, lifting all the interviewer's dictionaries and manuals and placing them on another part of the desk, and the like.

(3) Observe applicant's speech carefully for clarity.

2. ***Athetosis***

A type of paralysis often confused with spastic paralysis is athetosis. It causes flaccidity of muscles rather than tenseness and is marked by continuous movements of fingers and toes. Athetoids grimace more than spastics but never deteriorate mentally.

Because muscles are not overtensed, the athetoid may often prove capable of a fair amount of handling and even some fingering activities.

3. ***Parkinson's Disease***

Parkinson's disease or shaking palsy (paralysis agitans) is a disease of late life, progressive in character and marked by masklike facial appearances, tremor, slowing of voluntary movements, a tendency to walk quickly, peculiar posture and muscular weakness.

VIII. THE MENTALLY RETARDED

A. *Definition*

The White House Conference defined children of moron grade as "those children who (1) may learn to read and write to some extent under special instruction but who will profit little from ordinary academic instruction beyond the fourth or fifth grade; (2) who may learn to perform relatively simple, unskilled, occupational or industrial tasks with occasional oversight, and may be capable of earning a living under favorable conditions and under supervision, but who are incapable of progressing industrially beyond the common labor or [threshold] levels in simple trade or industrial pursuits; (3) who may acquire some advantageous social habits but who are incapable of successful adjustments to changing social or industrial conditions independently of outside help . . .".

B. *Other Characteristics*

1. ***Physical***

The White House Conference definition summarizes the educational, eco-

nomic and social facets of a mentally retarded person's capacity. It is important to add another aspect—physical characteristics—because many people erroneously believe that great physical strength is usually present when there is mental retardation. The mentally retarded vary as much in physique and physical capacity as do normal people. Only *some* mentally retarded people are very strong, while some are not only mentally retarded but also have a physical disability as well. Physical disability is twice as likely to occur among the mentally retarded as among the mentally normal.

2. *Personality and Other Social Characteristics*

In these, as in physical characteristics, the mentally retarded tend to have the same variation as normal people. Again, contrary to popular belief, some mentally retarded people *are* capable of displaying initiative. But not all are even-tempered, emotionally stable people, for the mentally retarded are many times as liable to emotional instability as the mentally normal. One of the main sources of emotional upset in the mentally retarded lies in their being required to perform tasks with a higher degree of skill than they are capable of achieving or in their being otherwise taxed beyond their limitations. Intolerance of their limited capacities on the part of superiors or coworkers causes emotional upsets. Although mentally retarded, these persons are sensitive to criticism or jokes aimed at their limited mental ability and so supervisors, co-workers, and interviewers should take this into account when talking to the mentally retarded.

In general, the mentally retarded present a varying pattern of different *degrees* of retardation. In evaluating a mentally retarded individual for employment it is necessary to weigh such compensating factors as emotional drives and desirable personality traits. The individual's desire to be independent, for example, is a real asset for placement.

C. *Interviewing the Mentally Retarded*

The interviewer should try to get as much objective data on an applicant as possible. Poor hearing rather than mental dullness, for example, may cause the applicant to give apparently irrelevant answers. There are several indications of low intelligence, however, which an interviewer may use, such as:

1. Type of class attended in school (ungraded).
2. Police or mental institution record.
3. Incoherence and lack of attention during interview, *when coupled with any of the foregoing.*

Reports on mentally retarded applicants should be secured when the applicants have been referred to the United States Employment Service by educational agencies.

D. *Occupational Potentialities*

Applicants with low-grade mentalities need not be considered handicapped if they have already built up adequate qualifying experience in an occupation. Inexperienced applicants, however, will need Selective Placement in suitable, simple jobs until they have built up their work experience. Recent studies indicate that the mentally retarded need not necessarily be limited to *repetitive* tasks Once learned, *varied*, simple tasks may prove more suitable for some persons.

Close and constant supervision may be a necessary factor in the proper adjustment of the individual on the job. In all likelihood, the lower the mental age of the applicant, the closer and more constant the supervision required. The mentally retarded apparently do their best work and remain at a more equable emotional level when working immediately under the supervision of a patient, tolerant person whom they can respect. In many instances, it may help the supervisor to know that some mentally retarded people learn better by observing

a *demonstration* of the job than by following only verbal or written instructions.

Other factors which interviewers will particularly check include:

1. Working with or around others, or alone.
2. Mechanical or electrical hazards which the applicant can understand.
3. Working speed.

Some mentally retarded people verbalize easily. This facility is misleading and should not be made the basis for recommendations for continuing formal education. However, this glibness may frequently be used occupationally.

In certain municipalities throughout the country, specialized educational programs have successfully prepared the mentally retarded for employment by making them aware of their limitations so that they may make realistic job choices; equipping them with occupational skills within suitable job areas such as food preparation and serving, building maintenance, personal service (beauty parlor, barber shop, domestic service, cleaning and pressing), and the like; encouraging the development of character traits that facilitate job holding; drilling in methods of job getting and holding.

IX. EMOTIONAL HANDICAPS

A. *Introduction*

Every person is subject to emotional stresses during his lifetime, among which are loss by death of family and friends, disappointments in love, financial difficulties, and loss of job. The majority of people are able to withstand emotional strains, but under great pressure some people break.

Again, the interviewer must be cautioned against making any diagnoses. Any concrete evidence that an applicant has a handicap should be used. See section G for evidences.

When dealing with applicants who have histories of psychoses or who give evidence of psychoneurotic tendencies, interviewers should remember that the traditional attitude toward emotional disorders is one of impatience, anger, or fear. In early days, people with emotional disorders were considered possessed of the devil and burned at the stake. More enlightened practice today finds the cause of the disability, treats it, and frequently cures it. While considerable headway has been made since witchcraft days, there is a long road ahead in educating ourselves, employers and the general public regarding this group. We must remember that, of all who become emotionally sick, roughly one-third recover completely, one-third recover fairly well, and one-third remain ill.

B. *Insanity as a Legal Term*

Before going further, it is well to note that insanity is a legal term rather than a medical one. It indicates a condition rendering a person unfit to enjoy liberty of action because of the unreliability of his behavior towards others or himself or both. *Not all emotional disorders render a person insane.* Veteran facilities devoted to mental patients may declare a patient incompetent in order to control the disbursement of his compensation to his dependents. This deprives the man of the right to enter any contractual agreement. He may, however, be competent to hold a job in industry

C. *Reports*

No applicant will be considered handicapped because of a current emotional disorder except on the basis of a medical report or known evidence or record. Interviewers should, however, record on the application card objective comments on the behavior of applicants who seem

to behave abnormally. Diagnostic terms are not to be entered on application records.

When the report shows an applicant may work, the interviewer should not be afraid to place him, as work is of definite therapeutic value. Contributing to his economic stability may aid the applicant considerably. Selective Placement for those with emotional disorders will concern itself more with working conditions than with physical activities, except where mental distress is translated or converted into physical complaint. Thus, it will be more important for the interviewer to know environmental conditions than to know the exact diagnosis.

There are precautions to be observed in evaluating reports from mental hospitals. Frequently, when a mental hospital is asked for a report on a former patient, the hospital will supply the agency only with the technical diagnosis and possibly a simple statement that the former patient is now able to work. It should be borne in mind that in larger hospitals the psychiatrist's contact with the patient is not such as to make it possible for him to supply the agency with an adequate personality inventory. Further, a hospital represents a highly artificial atmosphere and the individual's reaction to the hospital environment is not necessarily an accurate representation of his reaction to the environment outside a hospital. A man may be very scornful and uncooperative in the hospital's occupational therapy department yet he may be able and willing to apply himself seriously to a real job outside. The third and possibly most important point which should qualify complete acceptance of a hospital personality inventory is the fact that upon discharge from the hospital the individual is, as a rule, less sick than when he was in residence. Thus, a personality inventory drawn up when the individual is most sick should not be carried over in full to a period when he is relatively or fully recovered. The interviewer must, therefore, gauge the individual ability to adjust from his functioning on a job and must extract sufficient information from the applicant concerning his former job failures to enable the interviewer to visualize those situations which the worker is unable to tolerate.

D. *Interviewing Applicants With Emotional Disorders*

These applicants, like all others, should be interviewed in a language approximating their own, that is an individual with limited educational background should be approached only with that vocabulary which is common at his intellectual level. Such a person should not be spoken to about "up-grading," "prevailing wages," "sedentary jobs," and similar terms which are not part of the average workers conversation. These unfamiliar or not too well understood terms confuse the individual without giving him information. Yet he will frequently not indicate that he has not understood because he fears to show his ignorance.

If the applicant is visibly disturbed during the interview, the nervousness should not be ignored by the interviewer. It is proper for the interviewer to say "You seem nervous as you talk to me," or "You seem to find it hard to sit still." If the nervousness is that associated with an unfamiliar situation, the applicant will explain it easily enough and perhaps even lose this feeling of insecurity. If, however, the applicant states that he is always nervous or that he has had a breakdown, he can be asked for more details such as:

> "In what way do you feel nervous?"
> "Under what circumstances does this nervousness bother you most?"

This type of questioning does not constitute "psychiatric probing." Analogous questions would be asked of a man who reports that he has arthritis of the back or some other physical disability. From the answers to the questions one can get a picture of the kinds of situations which the individual tolerates badly, such as shrill noises, other workers sharing his tools, and the like.

To encourage the applicant, the interviewer might further state, "Let us talk

about what kind of job you could take that would not make this nervousness worse." In asking about past employment the interviewer should question the applicant about what he did or did not like in his jobs. In this way the interviewer may succeed in getting a picture of the man's adjustment apart from his skills; in other words, of his ability to get along with co-workers or supervisors. This type of indirect question is better than asking, "How did you get along with your fellow workers or your supervisor?" The latter type of question may be answered by a laconic, "I got along all right," which gives no information. The information sought, however, may be forthcoming more readily as the applicant describes in narrative form his feelings about his previous jobs.

When past employment records are checked, the previous employer should be asked direct specific questions on the man's apparent adjustment to co-workers and supervisors and his adjustment and initiative. If checking with employers must be done by telephone, it should not be done in the presence of the applicant. When an applicant has no employment record, it is worth attempting to get a narrative picture from him of his social adjustment in school. Comments that he may make concerning his teachers or the attitude of his classmates toward him may be an indication of the problem.

Another way of determining the individual's work capacity is to ask him to describe an imaginary job which he would consider right for himself. The applicant will, of course, respond at first with a very narrow picture which includes only the salary range and this generally will not be an attainable figure, but the applicant is then encouraged to go on and tell whether he is to work in a large or small shop or office; whether he is to work by himself or in cooperation or competition with other workers; what kind of employer he would like to have; whether he likes to help out another worker when he has completed his own job; whether he wants his supervisor to give him every detail of his job when an assignment is made or whether he likes to receive *general* instruction and fill in the details for himself. From such a picture one will get leads as to what conditions are acceptable to the worker and which must be avoided. The interviewer can then ask how important it is that certain conditions be avoided. Naturally, after one has invited the applicant to develop this picture, the interviewer must leave the realm of imagination and go back to the real life situation, letting the man know whether he is to make a compromise with certain of the conditions. The applicant in all probability is then able to let the interviewer know which compromises he can accept and which he would find unendurable.

Throughout the interview it should be remembered that when the applicant wishes to talk he should be listened to and not interrupted by questions. Important information is more apt to come when the applicant is speaking freely than when he is answering questions.

E. *Mental Health Classifications*

There are many classifications of the population on the basis of mental or emotional health. Any attempt to classify human beings will, of course, result in considerable overlapping among groups, but the system of grouping devised by the Michigan Industrial Mental Health Council is useful. The four groups are:

1. Psychotic.
2. Psychoneurotic.
3. Chronically maladjusted.
4. And the normal.

The third group is not usually considered handicapped to an extent requiring Selective Placement, while the last group clearly does not fall within the Selective Placement functions as defined.

The specific diagnosis of emotional conditions are not usually very helpful to the interviewer. Yet, in many instances, the diagnosis is all the information which is supplied. The interviewer therefore needs some understanding of the diagnostic terms. The following simplified

classifications will enable the interviewer to interpret the technical diagnosis in practical terms.

1. *The Psychotic*

A psychotic is one with a severely disorganizing complaint which sometimes requires hospitalization. People in this group are sent to mental institutions when disorganization becomes marked and released when their symptoms diminish enough or disappear. These individuals have a very unrealistic relation to their surroundings and usually do not realize they are ill.

a. Schizophrenia or dementia praecox

This illness frequently has its first manifestation in youth. It is characterized by a gradual withdrawal of interest and emotion from real life into a fantastic dream world wherein the hardships and frustrations of real life do not exist. Due to this lack of emotional attention to reality the individual may avoid people. Parallel to the withdrawal, however, there may be a strong attempt to preserve contact with the outside world. When this is so, one sees a hypersensitivity, but not an overt withdrawal. The hypersensitivity may make the person seem very aggressive and quick to quarrel.

Because many schizophrenics have artistic ability it seems wise to consider the possibility of artistic training in this group wherever it is practical. The two most common types of schizophrenia are:

(1) *Simple*

Here the withdrawal from reality has gone so far that there is little energy or drive in the direction of real life. These people can engage in occupations which require a minimum of thinking or action. They may be sensitive to criticism and, therefore, should not work in groups or in competition with others. In groups they quickly become the butt of practical jokes and teasing. Under these circumstances they may become violent.

(2) *Paranoid*

The individual believes that people are "ganging up" against him and due to this belief he is unduly antagonistic and ready to take offense over trifles. When working in a group he may come to believe that the conversations and jokes which the other workers have among themselves are directed at him. The individual may show a queer, mystical kind of logic in his conversations. He may have delusions of grandeur. He may actually see and hear things which are not there. Whether or not he may work will depend on the degree of contact which he has with reality, or the degree of emotional upset he suffers. Success in placing him calls for a protected job situation which does not strain him along competitive lines, and which does not call for skills which he has not up to the moment developed. The paranoid needs a good deal of reassurance from his employer.

A recent issue of Industrial Hygiene cites the case of a production worker who believed she was Queen Elizabeth (schizophrenia). As long as she was addressed in a manner which she considered befitting her dignity, she did an excellent job at her machine.

A United States Employment Service office in New York placed a woman with auditory hallucinations who remained in her job several months. She quit only because the change of co-workers near her made the "little men under the table" return.

b. Manic-depressive psychosis

This is a condition which recurs in cycles. These may be predominantly "manic" (i. e., a phase wherein

the individual is excessively overactive, excitable, and at times gay and elated), predominantly "depressive" (i. e., a phase wherein the individual is profoundly depressed, slowed up in speech and movements, completely disinterested in the world about him, and suicidal) or mixed, wherein both phases appear at the same time (i. e., a state wherein there is tension, restlessness and overactivity in the presence of depression). Patients with any of these phases are hospital cases and, therefore, of no concern to the Employment Service. Between attacks these people may work according to their underlying skills and personalities and should be employed without prejudice. In these quiescent periods one frequently notices the same methodical attention to detail which makes the compulsive neurotic a desirable person in certain types of work, as described later.

Persons reported recovered from this ailment are not considered handicapped if they have had a steady work record since discharge from the hospital and if behavior in the employment office seems normal. If the report shows the illness started at adolescence and has recurred at intervals, the applicant is considered handicapped.

c. Hypomania

This is a lighter form of manic psychosis which is frequently not hospitalized and, therefore, important to the employment worker. Judgment may be impaired, thought processes are more rapid than normal but are apt to be superficial, and the person can be readily provoked to laughter or tears. The degree to which the thought processes are disturbed (determined by the manner in which the applicant follows the questions asked and can stick to the point in expressing a thought) helps to determine whether the individual may work. The real test of work ability for this group must come from a job situation.

d. Psychosis with organic brain disease

Many of the organic brain diseases such as head injury, brain tumor, syphilis of the brain, multiple sclerosis, encephalitis, "stroke", etc., carry with them charactertistic mental symptoms which at times are severe enough to produce a disturbance in the sufferer's relationship to the outside world and thus cause him to be considered psychotic. Here medical evaluation is essential to determine employability.

During the most serious phase of a psychosis, it is obvious that the individual is not able to work. It should be recognized, however, that if their illness does not indicate any violence toward others or themselves, psychotics may work provided their aberrations are known and understood by their fellow workers.

2. The Psychoneurotic or Neurotic

Psychoneurotics are people with minor disorders of the mind causing only partial disorganization. They recognize that the disturbance is within themselves and their concept of the outside world remains undisturbed. They constitute 5 to 10 percent of the population at any one time. Some recover entirely, some are chronic neurotics.

These people are constantly beset by fears, compulsions and obsessions which make life uncomfortable and social relations a constant trial. They may be afraid of high places, or of riding on wheels; they may tremble and perspire profusely; some feel they must be perfect and dare not make mistakes. Most of them never get into institutions and they are met frequently in placement situations. Their disability very often does not prevent them from doing a good job.

Some of the chief neuroses apt to be encountered in a placement situation are:

a. Anxiety neurosis

This is the most common type found in industry. These people have an unreasonable feeling of dread which may or may not be associated with something real (heights, subways, etc.) or the manifestations may be entirely physical such as rapid heart, difficulty in breathing or increased physical tension.

If a medical report secured by the interviewer gives only diagnosis and no statement of intolerable working conditions, the interviewer will secure the latter from the applicant who is usually fully aware of his capacity and limitations.

b. Neurasthenia

This consists of excessive fatiguability, both physical and mental. As in anxiety neurosis, the interviewer will be able to obtain information by questioning the applicant who is aware of his limitations. For example, a neurasthenic who has kidney and intestinal complaints may be limited in standing, lifting, carrying, pushing, pulling, and the like.

c. Compulsive-obsessive neurosis

These people are compelled to perform some overt physical act or acts completely inappropriate to the immediate situation (such as washing of hands) or some mental calculation or ritual (such as counting by seven whenever they see that number). Some are haunted by a repetitious and inappropriate thought. They may work if they can control their actions and thoughts so as not to appear inattentive or to be away from work too frequently. If the interviewer can discover what the particular compulsion or obsession is, he will be able to select a suitable job where the irritant does not exist. In most cases, the condition does not affect work capacity adversely. On the contrary, these people are especially well suited to repetitive tasks and detail work. They are usually very conscientious and frequently are very adept at figures.

d. Conversion hysteria

This condition exists when a mental conflict becomes converted into a physical disability such as blindness, deafness, or paralysis. It is incapacitating to the degree that "true" blindness, deafness or paralysis is incapacitating.

A characteristic of the hysteric is his ability to dramatize himself. These individuals are especially gifted in interpersonal relationships. They need the extra gratification which comes from successful personal contacts. A person with conversion hysteria should always be placed on a job where he has the possibility of making personal contacts.

F. Recording Data

In recording information concerning an emotional disorder, it is mandatory to avoid use of the technical terms described above. The interviewer should try to show what conditions are suitable for the applicant (working around or with others, or alone) or what environmental factors are to be avoided as irritants (great noise, working inside, or the like, depending on the individual).

Some samples of comments describing various individuals with emotional handicaps are:

"Listless, inactive, apathetic. His work should not require him to compete or work closely with fellow workers. Piece work rates especially unsuitable"—might describe a particular simple schizophrenic. The latter term does *not* appear on the application record.

"Requires frequent encouragement from supervisors; feels fellow workers criticize him behind his back because of his eye glasses; wants to be called 'Mister R,' never by his first name; turns out more units of work per day than average in shop" (paranoid).

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"Laughs frequently during interview without apparent reason. Answers questions quickly but occasionally loses thread of conversation and needs reminder" (hypomanic).

"Must work on ground floor and not be required to run any errands to places above ground floor" (anxiety neurosis—fear of heights).

"Becomes easily fatigued. Can work 40 hour week only and at any work not requiring prolonged standing, stooping, turning, or weight moving activities" (neurasthenic with kidney complaint).

G. Summary

1. It must be remembered that Selective Placement of the emotionally handicapped is in the early stages of development. We should, wherever possible, work very closely with psychiatric social workers in the community. In this way we shall build up a body of experience similar to that we have developed for the physically handicapped.
2. Industry, too, recognizes the problem. W. D. Brown of the Ford Motor Company told the National Conference on Employment of the Disabled in November, 1941: "In some cases, no doubt, industry must bear the responsibility (for creating neuroses) and seek to eliminate the conditions that cause this trouble. This can be handled, first, by more careful selection of new employees who are to be placed on work that tends to create nervous strain, secondly, the immediate transfer of every employee to other work upon first indication that their job is getting them down, and finally, further research by the Engineering Department to improve the method of manufacturing that will entirely eliminate the nerve strain on fast production lines."
3. Some guiding principles for determining which people with emotional stresses need Selective Placement are:

   a. An applicant with little or no experience subsequent to release from a mental hospital is handicapped.

   b. An applicant with satisfactory work experience subsequent to discharge need not be considered handicapped if his behavior in the office seems normal.

   c. Those who never were institutionalized or treated but are known to be emotionally handicapped through draft status or discharge from the armed forces, are not considered handicapped if they have had a satisfactory work record, and behavior in the office seems normal.

   d. In areas where employers categorically restrict the hiring of workers with these problems, persons in groups "b" and "c" above will be considered handicapped because of employer attitude.

PART III

PHYSICAL DEMANDS ANALYSIS AND PHYSICAL CAPACITIES APPRAISAL

The following section, prepared by the Division of Occupational Analysis of the Bureau of Manpower Utilization, is illustrative of the matching of specific physical capacities appraisals against physical demands of specific jobs. As stated in the introductory material preceding the examples, the examples are based on in-plant studies. They were made, therefore, using the Physical Capacities Form, ES–150. The physical capacities form will not be utilized by the local office interviewer. The interviewer in the local office will utilize the Interviewing Guide, Form USES 545, for interviewing handicapped applicants, as described in section III of Part I. The list of activities and occupations on both of the tools are, of course, the same. The interviewer records the appraisal of capacities, and other information which will be necessary for selection and referral of the handicapped applicant, on the application card.

It is believed that the local office interviewer will find the material in Part III of value, particularly, in the specific illustrations of the matching of actual capacities against actual demands of jobs; for example, those shown on pages 117 through 124, under "Matching Physical Capacities with Physical Demands." The material on physical capacities in section V, including the examples of entries illustrative of the items in the physical capacities and working conditions lists, will be of particular interest.

The instructions relative to physical demands studies will be followed by the interviewer whenever he is called upon to make physical demands studies.

I. INTRODUCTION

In order to bring about the successful placement of workers in jobs, the placement officer must have basic information about both the requirements of jobs and the qualifications of applicants to meet these requirements. Complete information about the requirements of jobs includes a statement of the duties that are performed, how they are performed, and the skills and physical demands involved. Complete information about the qualifications of applicants includes such factors as work experience, education, interests, aptitudes, and physical capacities.

The principal techniques for obtaining information about the requirements of jobs are the employer interview and job analysis.[1] Information about the qualifications of applicants is determined through the use of such techniques as interviews, tests, and physical examinations.

Successful placement involves the consideration of all of these factors; however, in the placement of workers with physical limitations, particular emphasis must be given to the physical requirements of jobs and the physical capacities of workers.

[1] For a complete description of the method used in making job analyses, see TRAINING AND REFERENCE MANUAL FOR JOB ANALYSIS (Government Printing Office, June 1944).

The physical requirements of jobs are determined by *physical demands analysis* which is one phase of job analysis. The physical capacities of workers are determined by the *physical capacities appraisal* in which medical information is translated into the same terminology as the physical demands information. The appraisals made by the physician and the analyses made by the job analyst are then compared by the placement officer in order to *match* the physical capacities of workers with the physical requirements of jobs. It is the purpose of this manual to describe the principles of this technique of relating physical demands and capacities information and to provide instructions for the job analyst, the physician, and the placement officer in the preparation and matching of physical demands and physical capacities forms.

The technique of physical demands analysis of jobs and physical capacities appraisal of workers has several advantageous characteristics. It represents a *positive approach* by emphasizing the specific capacities of workers rather than their handicaps. It points out what a worker can do whatever his handicap may be rather than stressing his limitations and what he cannot do. There is no necessity for classifying workers as able-bodied or handicapped. All workers can be regarded as possessing various degrees of physical capacities for work. The technique eliminates the necessity for establishing general standards of "pass" and "fail" for physical examinations.

It provides an *individual approach* in that it deals with all workers as individuals rather than as belonging to various disability groups. The individual rather than the group approach is more sound since the variation in those physical capacities not affected by the disability is as great as that for the general population. The problem, therefore, must be answered on an individual basis. This approach overcomes the shortcomings of lists of jobs suitable for the handicapped such as a list of jobs suitable for workers with a leg amputation. It is the individual who must be matched with a job and not a group of workers with a group of jobs. Moreover, such lists may be harmful in that they tend to limit the number of jobs indicated as suitable for workers classed in the disability group since the lists are usually not exhaustive. On the other hand, any given list is likely to include many jobs which are not suitable for some of the individuals in that disability group because they do not possess all of the qualifications.

It provides a *specific approach* since it determines the specific capacities of workers and the specific requirements of jobs. Too often workers have been classified as being suited to "light," "moderate," or "heavy" work. These classifications give no indication of the worker's specific physical capacities.

It is applicable to the placement of *all workers*—male or female, young or old, able-bodied or handicapped, emotionally stable or unstable. Although it is particularly helpful in the selective placement of the handicapped, its use is not restricted to that group alone. Its use as a technique for placing women or for placing able-bodied workers on energy consuming jobs is equally important.

It establishes a *common terminology* for the job analyst, the physician, and the placement officer. It eliminates the necessity for the placement officer to make his own interpretations of a worker's physical capacities on the basis of a medical diagnosis recorded in technical terms.

It permits keeping the *diagnosis confidential* when it is so desired. Since the physician gives specific information concerning the worker's physical capacities, no diagnostic data whatsoever need be revealed and the confidential doctor-patient relationship is thus maintained. It is not absolutely necessary that the placement officer should know, for example, what disability is behind a weight-lifting restriction provided that he knows that the worker has the physical capacity to lift a certain number of pounds.

The technique is applicable both in the *placement and transfer* of workers. It may be used in the initial placement of workers on jobs which are in line with their physical capacities. It may also be used when it becomes necessary to transfer workers to other jobs because of changes in their physical capacities resulting from illness or injury.

Physical demands analysis is useful in *industrial and safety engineering* for determining the specific physical activities and working conditions of jobs in order to reduce or eliminate excessive job demands and thus make jobs less energy consuming and less hazardous. It is also used in job evaluation as a means of estimating the energy output required of workers.

The technique of physical demands analysis and physical capacities appraisal is applicable in *vocational rehabilitation* work as an aid in determining vocational training suitable for the individual in light of his physical capacities and the physical demands of the job. It supplies information useful in determining the physical training necessary to the individual's physical restoration. It is also helpful in the selection of prosthetic appliances necessary to insure maximum adjustment on a specific job.

II. PHYSICAL DEMANDS ANALYSIS

Physical demands analysis is that phase of job analysis by which the job analyst determines the physical activities and working conditions involved in jobs. Depending upon the kind of job information that is needed in a particular situation, physical demands analysis is best carried on in conjunction with other aspects of job analysis. For instance, when the skill requirements of jobs need to be determined, physical demands analyses should be prepared as part of job analysis schedules. When the requirements of employers for filling jobs are needed, physical demands analyses should be prepared together with job specifications. When, however, sufficient information is at hand on the skill requirements and specifications of jobs, physical demands analyses may be prepared independently.

Most job analysts are familiar with the concepts that a *position is made up of a group of tasks requiring the full-time services of one individual*, and that *a job is made up of a group of positions which are identical with respect to their major tasks*. These concepts apply to all aspects of job analysis including physical demands analysis.

When analyzing the skill requirements of jobs in a plant, the analyst usually prepares only one job analysis schedule for each job analyzed. This is done because the skill requirements of a job remain relatively constant throughout the plant. In physical demands analysis work, however, it may be necessary to prepare several physical demands analysis forms on one job. This is necessary because the physical and environmental requirements of a job may vary widely in different departments in the plant. Conversely, the information on one physical demands analysis form may serve to cover several jobs when the physical and environmental requirements of the jobs are basically the same.

In a complete job analysis the analyst is concerned with four categories of information; namely, *what* the worker does; *how* he does it; *why* he does it; and the *skill* involved in the doing. In physical demands analysis he emphasizes *what* the worker does and *how* he does it, but points out *why* he does it and the *skill* that is involved only on a few rare occasions when this information is necessary to give a clear picture of the physical activities and working conditions.

The analyst should remember that he is to analyze the job as it exists in one particular place. Any previous knowl-

edge or concept of the job should be discarded insofar as possible. This knowledge may be helpful by serving as a reminder of what to look for, but should not be allowed to influence the analytical viewpoint.

When analyzing the physical demands of jobs, the analyst should make certain that he records all of the physical activities required by the job rather than the physical activities which may be engaged in by an individual worker. For instance, a worker may jump from a platform rather than use nearby steps. Although the worker does jump, this activity is not a requirement of the job. A worker may prefer to stand at a bench while working rather than use the seat provided for him. Although the worker does stand, this activity is not a requirement of the job since use of the seat would eliminate standing. An Arc Welder may use his sense of hearing to help him maintain the proper arc by listening to the hissing sound of the arc. The job, however, does not require the Arc Welder to hear, the important requirement being sight whereby he can determine whether or not he is maintaining the proper arc by observing the welding process.

Likewise, the analyst must guard against recording physical activities which are of an emergency nature and are not required by the job itself. For example, additional physical activities might be involved if a worker repairs his own equipment when a regular repairman is not available.

The analyst must make certain that he covers the full range of physical activities required by the job. For instance, some jobs may require a change in the worker's activities every few hours and again other jobs may require a change in the worker's activities every few days. The ideal situation would allow the analyst to observe the physical activities required for the total job. However, since it would not be practical to spend several days observing one job, it is obvious that the analyst must resort to asking questions of the worker or the supervisor to supplement the information on that part of the job that was observed.

Even in the ordinary analysis the analyst will find it advisable to obtain most of the information by observation and the rest of it by questioning the worker or supervisor. It is impossible to establish a hard and fast rule indicating which items to observe and which items to obtain by questioning. Insofar as possible the analyst should determine the following information by observation:

1. The relationship of the various physical activities to each other.
2. The time that the worker is engaged in each physical activity or subject to each working condition.
3. The number of times the worker is engaged in each physical activity and subject to each working condition during a given period of time such as an hour or a workday.
4. The intensity factors such as the distance walked, the weight lifted, the height climbed, the directions reached, the temperature, the height of working place, etc.

This information should be verified for accuracy by questioning the worker or the supervisor. In addition to verifying the information, the analyst should also attempt to obtain the following facts:

1. Other duties not observed by the analyst. This information may reveal additional physical demands.
2. Weight of the heaviest object lifted.
3. Other tools and equipment used by the worker. This information may reveal additional facts about the physical activities and working conditions.
4. Differences in the way the job is performed on other shifts.

Form BS-129
(3-44)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R068.3.
Approval expires February 28, 1946.

PHYSICAL DEMANDS FORM

Job title _____ Occupational code _____

Dictionary title _____

Industry _____ Industrial code _____

Branch _____ Department _____ Date _____

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
____ 1. Walking.	____16. Throwing.	____51. Inside.	____66. Mechanical hazards.
____ 2. Jumping.	____17. Pushing.	____52. Outside.	____67. Moving objects.
____ 3. Running.	____18. Pulling.	____53. Hot.	____68. Cramped quarters.
____ 4. Balancing.	____19. Handling.	____54. Cold.	____69. High places.
____ 5. Climbing.	____20. Fingering.	____55. Sudden temp. changes.	____70. Exposure to burns.
____ 6. Crawling.	____21. Feeling.	____56. Humid.	____71. Electrical hazards.
____ 7. Standing.	____22. Talking.	____57. Dry.	____72. Explosives.
____ 8. Turning.	____23. Hearing.	____58. Wet.	____73. Radiant energy.
____ 9. Stooping.	____24. Seeing.	____59. Dusty.	____74. Toxic conditions.
____10. Crouching.	____25. Color vision.	____60. Dirty.	____75. Working with others.
____11. Kneeling.	____26. Depth perception.	____61. Odors.	____76. Working around others.
____12. Sitting.	____27. Working speed.	____62. Noisy.	____77. Working alone.
____13. Reaching.	____28. _____	____63. Adequate lighting.	____78. _____
____14. Lifting.	____29. _____	____64. Adequate ventilation.	____79. _____
____15. Carrying.	____30. _____	____65. Vibration.	____80. _____

Details of physical activities:

16—39366-1 U. S. GOVERNMENT PRINTING OFFICE

III. THE PHYSICAL DEMANDS FORM

Identifying Information

In this section of the physical demands form the analyst should fill in the following information:

1. ***Job Title.*** The name by which the job is commonly called in the establishment in which it is being analyzed. This title must be the same as the title that is used for any job analysis prepared for the job.

2. ***Occupational Code.*** The 5-digit or 6-digit code number for the job as given in the DICTIONARY OF OCCUPATIONAL TITLES when the job is defined there. Otherwise, no code number should be entered.

3. ***Dictionary Title.*** The name of the job as given in the DICTIONARY OF OCCUPATIONAL TITLES when it is defined there. Otherwise, no title should be entered.

4. ***Industry.*** The name of the industry in which the job is being analyzed.

5. ***Industrial Code.*** The proper 4-digit code number specified by the Social Security Board in its Industrial Classification Code.

6. ***Branch.*** The branch of the industry in which the job is being analyzed.

7. ***Department.*** The name of the department or departments of the plant in which the job is located.

8. ***Date.*** The date on which the analysis was made.

Physical Activities

In this section of the physical demands form, 27 of the most common physical activities are listed. Definitions of these activities are given on page 125. The analyst must be fully familiar with each definition. Numbers

28, 29, and 30 provide space for writing in other activities which the analyst may encounter.

In filling out this section, the analyst should place an "X" before each activity required by the job and a "0" before each activity not required by the job. All activities should be so marked with either an "X" or a "0."

Later, under "Details of Physical Activities," the analyst should describe the specific time and intensity factors and the relationships of all required activities. Likewise, under "Details of Hazards," he indicates the possibilities of injury to the worker which are involved in the activities.

Working Conditions

In this section of the physical demands form, 27 of the most common working conditions are listed and are numbered from 51–77. Definitions of these conditions are given on pages 34 and 35. The analyst must be fully familiar with each definition. Numbers 78, 79, and 80 provide space for writing in other working conditions which the analyst may encounter.

The analyst should place an "X" before each working condition to which the worker is exposed, and a "0" before each working condition to which the worker is not exposed. All items are to be so marked with either an "X" or a "0."

Later, under "Details of Working Conditions," the analyst should describe the specific characteristics of the working conditions. Likewise, under "Details of Hazards," he should indicate the possibilities of injury to the worker which are involved in the working conditions.

Details of Physical Activities

It is the purpose of this section of the physical demands form to specify the degree of the physical activities involved by indicating (1) time or frequency and (2) intensity and to describe the inter-relationships of the various physical activities required by the job. In recording the information in this section, the analyst should emphasize the physical requirements of the job and, unless necessary for clarity, should not describe duties, equipment, or materials.

In starting the paragraph, the analyst is to think of the phrase, "This worker" and begin with a statement which would be a continuation of this thought, such as "Stands, stoops, reaches for, grasps, and handles levers, knobs, and handwheels of machine (3 hours)."

The appropriate *time* consumed by each activity should be expressed in one or more of the following ways, preferably the first one indicated.

1. The approximate number of minutes or hours in which the activity occurs during the working day. For example, "Reaches for, grasps, and handles mallets, pitching tool, pneumatic drills, chisels, and portable emery wheel to cut and polish stones and slabs (6 hours)."

2. The number of times per hour or per working day that the activity occurs. This method may be used independently (Example No. 1), or it may be used in conjunction with the first method described (Example No. 2). Example No. 1: "Lifts and carries up to 25 pounds as far as 75 feet three times daily." Example No. 2: "Stands, stoops, grasps ladle of molten babbitt weighing up to 15 pounds and lifts to waist height to pour in molds five times per hour (3 hours)."

3. The percent of the working day. This method of expressing time is useful when the work cycle extends over a long period such as several days or a week. It is also useful when a great many physical activities are required in several combinations. There is a disadvantage in expressing the time factor in percent of time since the person using the physical demands analysis information must pause and convert the percent into hours in order to have a satisfactory concept. For this reason the two previous methods of expressing the time factor are generally regarded as preferable.

4. By an adverb such as constantly, frequently, occasionally, alternately, intermittently, etc. This method should be used only when none of the preceding methods is applicable since these adverbs are subject to a different interpretation by each person who reads them.

The analyst should express the *intensity* factor by specific statements according to the examples that follow:

1. ***Lifting and Carrying.*** The weight of objects lifted and the distance carried, such as "Crouches and reaches down to grasp, lift and carry 25-pound metal parts up to 25 feet."

2. ***Handling and Fingering.*** The names of parts handled and fingered such as "Reaches forward, grasps, handles, and fingers valve parts and micrometers during inspection operations."

3. ***Pushing and Pulling.*** The body position required, the direction pushed or pulled, and the object pushed or pulled such as "Stands and reaches above shoulder height to grasp and pull electric wires horizontally through conduit," or "Stands and reaches forward to grasp and pull electric wires horizontally through conduit by bracing one foot against wall." It is not deemed advisable at this time, however, to include information on the force exerted in pushing and pulling since such information may be subject to misinterpretation. For instance, in the above examples, the first worker, who is pulling electric wires horizontally through ½-inch conduit above his head, is capable of exerting a force around 20 pounds, while the body position of the second worker makes it easily possible for him to pull with a force up to 150 pounds. Experience with the pushing and pulling factors reveals that certain body positions require more effort to push or pull 5 pounds than other positions require to push or pull 300 pounds. Until such time, then, when it becomes possible to convert the force exerted in pushing and pulling from all body positions into standardized terms, the analyst is only to state the body position required, the direction pushed or pulled and the object pushed or pulled.

4. ***Climbing, Jumping, Walking, and Crawling.*** The distance climbed, jumped, walked, and crawled such as "Climbs 40-foot ladder to and from crane cab."

5. ***Standing, Stooping, Crouching, Kneeling, Turning, and Sitting.*** The time factors on these activities will automatically explain intensity such as "Stands and stoops over workbench (4 hours)."

6. ***Reaching.*** The body position required and the direction reached such as "Stoops and reaches down," "Sits and reaches forward," "Stands and reaches above shoulder height," or "Stands and reaches above and below shoulder height."

7. ***Feeling.*** The reason why feeling is required, as in determining the size, shape, temperature, or texture of objects.

8. ***Talking.*** If other than ordinary conversation is required, the analyst should indicate the quality of voice required as in enunciating clearly over a public address system or should indicate the volume of voice required as in overcoming background noises.

9. ***Hearing.*** The most difficult sounds required to be heard such as ordinary conversation or warning whistles amid background noises.

10. ***Seeing.*** The most difficult object required to be seen as well as the distance, such as "Observes the indicator on a 3-inch dial at 6 feet," or "Observes hand and finger signals at 100 feet."

11. ***Color Vision.*** The colors required to be distinguished such as red, green, orange, and brown electric wires.

12. ***Depth Perception.*** The reason why depth perception is required, such as to judge distances in operating a crane.

When physical activities involving the use of hands, arms, feet, and legs require the use of one hand or arm, or one foot or leg, the analyst should make specific remarks in this connection. For example, "Stands on left leg while actuating trip of press with right leg (7 hours)."

In addition to indicating the time and intensity factors, the *relationships between activities* should be brought out in the section on "Details of Physical Activities." It will be noticed in the following example taken from the physical demands form for Engine-Lathe Operator, First Class, that the items on the check list are not written separately since activities are rarely undertaken independently. They should be written up as they actually occur insofar as possible.

> "Stands, stoops, and turns while operating machine (7 hours); occasionally walks about 10 feet lifting and carrying chucks and materials not over 30 pounds; pushes hand truck to transport loads up to 300 pounds about 75 feet four times daily; using both hands, manipulates lathe control handwheels to set controls to fine (1/64 inch) etched gradations (3 hours); visually, and by fingering and feeling, examines finishes on machine parts; stoops to read vernier and other fine etched gradations (2 hours); orally instructs Learner (1 hour)."

Details of Working Conditions

This heading does not appear on the physical demands form due to the variation in the length of the section on "Details of Physical Activities." It should be written in by the analyst as a heading directly following the completed section on "Details of Physical Activities." These details of working conditions will be written in a manner similar to that in the section on "Details of Physical Activities." The analyst should keep the following points in mind. In starting the paragraph the analyst should begin with the word "Works" and then continue by indicating the time and intensity factors for the working conditions.

The time and intensity factors should be indicated as follows:

1. ***Inside and Outside.*** Specify the conditions under which the worker works inside or outside and the time involved such as "Works inside plate shop with one side open to weather (6 hours), and outside in all kinds of weather (2 hours)."

2. ***High Places.*** The height of elevated work places and the type of work place, such as "Works on scaffolding 2 feet wide at heights up to 60 feet (7 hours)."

3. ***Cramped Quarters.*** The size of cramped quarters as well as a short description of the cramped quarters, such as "Works in narrow compartments 6 feet by 3 feet by 2 feet (2 hours)."

4. ***Hot and Cold.*** The range in degrees of high or low temperatures, such as "Works in temperatures of 110° to 120° F. (2 hours)" or "Works in temperatures of 5° to 20° F. (5 hours)."

5. ***Sudden Temperature Changes.*** The range in degrees of sudden temperature changes such as "Exposed to sudden temperature changes from 120° F. to prevailing outside temperatures."

6. ***Humid and Dry.*** Humidity and dryness should be related to the temperature when both are pertinent factors such as "Works in temperature of 100° F. with very high humidity."

7. ***Wet.*** Source of wetness, such as "Works in constant contact with wet piping (4 hours)" or "Works in quarters wet from rain (2 hours)."

8. ***Lighting.*** If lighting is inadequate indicate source of light, extent of glare and shadows, and the light contrast between work and surroundings.

9. ***Noisy.*** The source of the noise, such as "Exposed to noises of nearby riveting hammers."

10. ***Vibration.*** The source of vibration such as "Exposed to vibration from small pneumatic riveting hammer (7 hours)."

If the job differs in any way on other shifts, the analyst should indicate these differences at the end of the paragraph.

Details of Hazards

This heading should be added to the physical demands form directly following the completed section on "Details of Working Conditions." It is the purpose

of this section to point out the possibilities of injury to the worker as a result of hazards involved in the job. The analyst should make no attempt to express the degree of possible injury.

In contrast to the previous sections the analyst should not express the time that a worker is subject to a specific hazard since such information is highly subjective.

Caution should be used in determining the possibility of a hazard. For instance, a Forming-Press Operator engaged in bending small strips of metal, one at a time, may be in danger of having his hand cut in the press. However, if a safety device has been installed on the machine and it automatically pulls his hand back each time the die descends, there is no hazard with respect to having his hand crushed in the dies of the machine.

Frequently the analyst will have difficulty in determining whether a hazard actually exists on a job. It will be helpful at this point to ask the worker, the foreman, or other responsible authority whether a hazard actually exists.

The analyst should start the paragraph on hazards with the phrase, "Possibility of" and then continue with statements on specific injuries from the hazards inherent on the job. When, however, safety measures have been taken to partly, but not entirely, eliminate the possibility of the hazards, the analyst should make a statement such as "Possibility of injury from falling 25 feet from catwalk (reduced by hand rail)." If the hazards differ on the other shifts, the analyst should note this difference with a statement such as "Crane not in use during third shift."

In determining the possible injuries the analyst will be guided by asking himself this question "Are there hazards inherent in this job whereby the worker may suffer cuts, bruises, burns, fractures, sprains, loss of parts, impairment of sight, impairment of hearing, occupational diseases, electrical shock, or other injury?" If so, the following statements should serve as a guide in describing these hazards:

1. ***Inside.*** There are no specific hazards inherent in this factor alone.

2. ***Outside.*** Any hazard such as illness resulting from exposure need not be mentioned since it would be obvious to the physician or employment officer.

3. ***Hot, Cold, Sudden Temperature Changes, and Humid.*** The hazards that might possibly result from these working conditions, likewise, are obvious to the physician and placement officer and need not be mentioned.

4. ***Toxic Conditions.*** Some examples are: "Possibility of metal fume fever from galvanized iron welding fumes" and "Possibility of respiratory, digestive, and skin irritations from liquids, vapors, and odors from zinc chromate primer, paint, and thinner (reduced by respirator, protective cold cream, and cloth masks)."

5. ***Radiant Energy.*** "Possibility of injury to the eyes from flashes of electric arcs used by nearby workers."

6. ***Moving Objects.*** "Possibility of being severely injured by sharp ends of steel bars carried by crane."

7. ***Mechanical Hazards.*** "Possibility of cuts from sharp edges of shaper cutter, chisels and other woodworking tools."

8. ***Electrical Hazards.*** "Possibility of shock from high-tension wires (reduced by insulated tools and rubber 'blankets')."

9. ***Possibility of Burns.*** "Possibility of burns from hot molten metal splashed from pouring ladles (reduced by leather gloves and leather leg pads)."

10. ***Explosives.*** "Possibility of injury from accidental explosion of T. N. T. samples."

11. ***Noise.*** "Possibility of injury to hearing faculties from constant riveting noises."

12. ***High Places.*** "Possibility of injury by falling 25 feet from scaffolding to concrete floor."

Illustrations of Completed Physical Demands Forms

The following completed physical demands forms were prepared in conjunction with in-plant programs of physical demands analysis and physical capacities appraisal. They are included to serve as examples of how physical demands forms may be prepared.

Form DS-130
(3-44)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R068.3.
Approval expires February 28, 1946.

PHYSICAL DEMANDS FORM

Job title Loom Fixer Occupational code 4-16.010

Dictionary title LOOM FIXER

Industry Textile Industrial code 2211

Branch Cotton Goods Department Weaving Date 9-23-44

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
X 1. Walking.	O 16. Throwing.	X 51. Inside.	X 66. Mechanical hazards.
O 2. Jumping.	X 17. Pushing.	O 52. Outside.	O 67. Moving objects.
O 3. Running.	X 18. Pulling.	O 53. Hot.	X 68. Cramped quarters.
X 4. Balancing.	X 19. Handling.	O 54. Cold.	O 69. High places.
X 5. Climbing.	X 20. Fingering.	O 55. Sudden temp. changes.	O 70. Exposure to burns.
X 6. Crawling.	O 21. Feeling.	O 56. Humid.	O 71. Electrical hazards.
X 7. Standing.	O 22. Talking.	O 57. Dry.	O 72. Explosives.
X 8. Turning.	O 23. Hearing.	O 58. Wet.	O 73. Radiant energy.
X 9. Stooping.	X 24. Seeing.	O 59. Dusty.	O 74. Toxic conditions.
X 10. Crouching.	O 25. Color vision.	O 60. Dirty.	O 75. Working with others.
X 11. Kneeling.	O 26. Depth perception.	O 61. Odors.	X 76. Working around others.
O 12. Sitting.	O 27. Working speed.	X 62. Noisy.	O 77. Working alone.
X 13. Reaching.	28.	X 63. Adequate lighting.	78.
X 14. Lifting.	29.	X 64. Adequate ventilation.	79.
X 15. Carrying.	30.	O 65. Vibration.	80.

16—20366-1 U. S. GOVERNMENT PRINTING OFFICE

Details of physical activities: Stands and walks around job site during entire working day. Climbs (4 feet) on scaffolds and ladders maintaining body balance while working there (6 hours). Using either or both arms, hands and fingers, reaches for, grasps, and lifts tools and spare parts, weighing up to (15 pounds) and carries them (90 feet) to loom needing repair. Pushes hand truck, weighing up to (200 pounds) to transport heavy bulky parts. Handles and fingers harnesses, wires, needles, pattern cards, warp spools, wrenches, jacks and screwdrivers to repair and adjust looms. Pushes and pulls on parts to align them. Occasionally turns, stoops, crawls, crouches or kneels to reach parts needing repair. Observes all job operations and inspects parts.

Details of working conditions: Works around others inside adequately lighted and ventilated but noisy shop. Frequently works in cramped and awkward positions.

Details of hazards: Possibility of injury to hands and fingers from gears and other mechanical parts of looms.

Form ES-130 (3-44)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R088.2.
Approval expires February 28, 1946.

PHYSICAL DEMANDS FORM

Job title Stonecutter Occupational code 4-68.200

Dictionary title STONECUTTER HAND II

Industry Stonework Industrial code 3281

Branch Cut Stone & Stone Products Department Cutting Date 8-10-44

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
X 1. Walking.	0 16. Throwing.	X 51. Inside.	X 66. Mechanical hazards.
0 2. Jumping.	X 17. Pushing.	X 52. Outside.	X 67. Moving objects.
0 3. Running.	X 18. Pulling.	0 53. Hot.	0 68. Cramped quarters.
0 4. Balancing.	X 19. Handling.	0 54. Cold.	0 69. High places.
0 5. Climbing.	X 20. Fingering.	0 55. Sudden temp. changes.	0 70. Exposure to burns.
0 6. Crawling.	0 21. Feeling.	0 56. Humid.	0 71. Electrical hazards.
X 7. Standing.	0 22. Talking.	0 57. Dry.	0 72. Explosives.
X 8. Turning.	0 23. Hearing.	0 58. Wet.	0 73. Radiant energy.
X 9. Stooping.	X 24. Seeing.	X 59. Dusty.	0 74. Toxic conditions.
0 10. Crouching.	0 25. Color vision.	X 60. Dirty.	X 75. Working with others.
0 11. Kneeling.	0 26. Depth perception.	0 61. Odors.	0 76. Working around others.
0 12. Sitting.	0 27. Working speed.	X 62. Noisy.	0 77. Working alone.
X 13. Reaching.	28.	X 63. Adequate lighting.	78.
X 14. Lifting.	29.	X 64. Adequate ventilation.	79.
X 15. Carrying.	30.	X 65. Vibration.	80.

16—30368-1 U. S. GOVERNMENT PRINTING OFFICE

Details of physical activities: Stands, stoops, walks, and turns to perform the following operations: Using both hands, arms, and fingers, reaches for, grasps, lifts and carries stones and slabs of marble weighing up to 75 pounds, and pushes and pulls on them to position them for cutting (1 hour). Uses both hands and arms to handle heavy hammers, mallets, pitching tool, pneumatic drills, T wrenches, emery wheel and various types of chisels to cut and polish stones and slabs (6 hours). Fingers folding rule, calipers, straightedge, and squares to measure stones for dimensions (1 hour). Pushes hand truck to transport material weighing up to 300 pounds and pulls on chainfall to operate overhead crane. Reads blueprints and observes stone or slabs for best cutting position and surface.

Details of working conditions: Works with others inside (3 hours) and outside (5 hours). Exposed to loud noises from pneumatic drill and constant hammering, dust and dirt from cutting and polishing operations, and vibration to body from operating drills.

Details of hazards: Possibility of bruises or cuts from chips or block of stone, of respiratory disorders from inorganic dust, and of injury from heavy stones falling on feet or hands.

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R068.3.
Approval expires February 28, 1946.

PHYSICAL DEMANDS FORM

Job title Welder, Arc, Production Occupational code 4-85.020

Dictionary title WELDER, ARC

Industry Ship and Boat Building and Repair Industrial code 3431

Branch Construction Department Outfitting Dock Date 6-23-44

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
X 1. Walking.	O 16. Throwing.	X 51. Inside.	X 66. Mechanical hazards.
O 2. Jumping.	O 17. Pushing.	X 52. Outside.	X 67. Moving objects.
O 3. Running.	X 18. Pulling.	X 53. Hot.	X 68. Cramped quarters.
X 4. Balancing.	X 19. Handling.	O 54. Cold.	X 69. High places.
X 5. Climbing.	O 20. Fingering.	X 55. Sudden temp. changes.	X 70. Exposure to burns.
X 6. Crawling.	O 21. Feeling.	O 56. Humid.	X 71. Electrical hazards.
X 7. Standing.	O 22. Talking.	O 57. Dry.	O 72. Explosives.
X 8. Turning.	O 23. Hearing.	X 58. Wet.	X 73. Radiant energy.
X 9. Stooping.	X 24. Seeing.	O 59. Dusty.	X 74. Toxic conditions.
X 10. Crouching.	O 25. Color vision.	O 60. Dirty.	O 75. Working with others.
X 11. Kneeling.	O 26. Depth perception.	O 61. Odors.	X 76. Working around others.
X 12. Sitting.	O 27. Working speed.	X 62. Noisy.	O 77. Working alone.
X 13. Reaching.	28.	X 63. Adequate lighting.	78.
X 14. Lifting.	29.	O 64. Adequate ventilation.	79.
X 15. Carrying.	30.	O 65. Vibration.	80.

16—80366-1 U. S. GOVERNMENT PRINTING OFFICE

Details of physical activities: Climbs and balances on staging and ladders as high as 60 feet and walks and crawls within 100' x 70' ship area while carrying up to 15 pounds of welding equipment or while pulling and lifting electric cable weighing up to 50 pounds (10%); stands, sits, stoops, crouches, and kneels in awkward positions to twist and reach above and below shoulder height while handling 1-pound electrode holder during welding process and while handling light wire brush and slag-hammer to clean weld (90%). Observes 1/8-inch rod tip at 12 inches.

Details of working conditions: Works inside hull (6 hours), and outside (under overhead shelter during wet weather) (2 hours), on decks and staging up to 60-foot height (5 hours), in cramped quarters (3 hours). Exposed to temperatures of about 100° F when in close quarters (1 hour), to sudden temperature changes from about 100° F to the atmospheric temperatures (about 4 times daily), and to nearby chipping and hammering noises (5 hours).

Details of hazards: Possibility of injury from falling as far as 60 feet from decks and staging, of respiratory irritation from black-iron welding fumes, and of metal-fume fever from galvanized-iron welding fumes (reduced by ventilation system), of injury to the eyes from rays from electric welding arcs (reduced by goggles and hood), of cuts from sharp edges of materials, and of electric shock from uninsulated parts of electrode holder.

Form BM-120
(3-44)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R088.3.
Approval expires February 28, 1942

PHYSICAL DEMANDS FORM

Job title Assembler Occupational code 5-03.554

Dictionary title FITTING MAN

Industry Aircraft Manufacturing Industrial code 3421

Branch Airplane Manufacturing Department Assembly Date 3-30-44

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
X 1. Walking.	0 16. Throwing.	X 51. Inside.	X 66. Mechanical hazards.
0 2. Jumping.	X 17. Pushing.	0 52. Outside.	0 67. Moving objects.
0 3. Running.	X 18. Pulling.	0 53. Hot.	0 68. Cramped quarters.
0 4. Balancing.	X 19. Handling.	0 54. Cold.	0 69. High places.
0 5. Climbing.	X 20. Fingering.	0 55. Sudden temp. changes.	0 70. Exposure to burns.
0 6. Crawling.	X 21. Feeling.	0 56. Humid.	0 71. Electrical hazards.
X 7. Standing.	0 22. Talking.	0 57. Dry.	0 72. Explosives.
0 8. Turning.	0 23. Hearing.	0 58. Wet.	0 73. Radiant energy.
X 9. Stooping.	X 24. Seeing.	0 59. Dusty.	0 74. Toxic conditions.
0 10. Crouching.	0 25. Color vision.	0 60. Dirty.	0 75. Working with others.
0 11. Kneeling.	X 26. Depth perception.	0 61. Odors.	X 76. Working around others.
0 12. Sitting.	0 27. Working speed.	X 62. Noisy.	0 77. Working alone.
X 13. Reaching.	X 28. Blowing	X 63. Adequate lighting.	78.
X 14. Lifting.	29.	X 64. Adequate ventilation.	79.
X 15. Carrying.	30.	X 65. Vibration.	80.

16—30366-1 U.S. GOVERNMENT PRINTING OFFICE

Details of physical activities: Stands at workbench (7 hours) and walks (20 feet) to and from supply room to obtain equipment and materials, weighing up to (20 pounds) and stoops, lifts, and carries them back to bench (4 times daily). Using both hands and fingers, handles parts, to position them and fasten them to panel by reaching for, grasping, and handling, pushing and pulling electric drills, reamers, hammers, rivet squeezers, one-shot riveting hammers, wrenches, files, pliers, screwdrivers, clamps, bolts, and screws (7 hours). Determines correct alignment by reading blueprints and specifications and measuring to tolerance of 1/32" with measuring tape, steel ruler and squares. Fingers instrument indicator hands to set and adjust them. Tests the vacuum and pressure lines for leaks by blowing into or sucking at the ends of the attached tubing. Uses depth perception to judge whether parts are accurately positioned on panel.

Details of working conditions: Works inside well lighted and ventilated airplane factory. Exposed to loud noises from operation of power tools and metal working machines and to vibration of electric drills when in use.

Details of hazards: Possibility of cuts and bruises from sharp and uneven surfaces of parts, tools, and machines.

Form BS-136
(3-44)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R088.3.
Approval expires February 28, 1946.

PHYSICAL DEMANDS FORM

Job title Pipe Fitter Occupational code 5-30.010

Dictionary title PIPE FITTER

Industry Ship and Boat Building and Repair Industrial code 3431

Branch Shipbuilding Department Hull Date 7-11-44

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
X 1. Walking.	O 16. Throwing.	X 51. Inside.	X 66. Mechanical hazards.
O 2. Jumping.	X 17. Pushing.	X 52. Outside.	O 67. Moving objects.
O 3. Running.	X 18. Pulling.	O 53. Hot.	X 68. Cramped quarters.
X 4. Balancing.	X 19. Handling.	O 54. Cold.	X 69. High places.
X 5. Climbing.	X 20. Fingering.	O 55. Sudden temp. changes.	X 70. Exposure to burns.
O 6. Crawling.	O 21. Feeling.	O 56. Humid.	O 71. Electrical hazards.
X 7. Standing.	O 22. Talking.	O 57. Dry.	O 72. Explosives.
X 8. Turning.	O 23. Hearing.	O 58. Wet.	O 73. Radiant energy.
X 9. Stooping.	X 24. Seeing.	X 59. Dusty.	O 74. Toxic conditions.
X 10. Crouching.	O 25. Color vision.	X 60. Dirty.	O 75. Working with others.
X 11. Kneeling.	O 26. Depth perception.	O 61. Odors.	X 76. Working around others.
O 12. Sitting.	O 27. Working speed.	X 62. Noisy.	O 77. Working alone.
X 13. Reaching.	28.	X 63. Adequate lighting.	78.
X 14. Lifting.	29.	X 64. Adequate ventilation.	79.
X 15. Carrying.	30.	O 65. Vibration.	80.

16—39366-1 U. S. GOVERNMENT PRINTING OFFICE

Details of physical activities: Stands, walks, kneels, crouches, stoops, and turns during job process. Climbs 12-foot ladders to catwalk or scaffolding (12 to 20 times daily) and maintains body balance while working there. Reaches for, grasps, and lifts pipes weighing up to (60 pounds) and carries them (150 feet) between workbench and job site. Using either or both arms, hands, and fingers, handles chisels, hammers, and oxyacetylene torch and pushes and pulls on levers of pipecutter, vise, stock and dies to cut and thread pipes (6 hours). Uses fingers of either or both hands to assemble pipes with couplings, nuts, bolts, and wrenches (3 hours). Pushes and pulls on pipes to position them in walls and floors. Fingers rules, compasses, and squares to locate position of pipes (2 hours). Reads blueprints and calibrations on measuring instruments and observes results of hydrostatic pressure test.

Details of working conditions: Works outside (5 hours) and inside adequately ventilated and lighted building (3 hours). Exposed to noises, dust and dirt from construction work. Occasionally works in cramped position when installing pipes.

Details of hazards: Possibility of injury from falls off scaffolding, of burns to hands when using oxyacetylene torch, and of cuts on hands and arms when handling sharp-edged metal pipes and tools.

IV. PHYSICAL CAPACITIES APPRAISAL

As a counterpart of the physical demands analysis of the job, information is obtained on the worker's capacities for carrying on those physical activities and working under those conditions listed on the physical demands form. With comparable information on both the job and the worker, the personnel office may then match a worker and a job in such a way that the physical requirements of the job do not exceed the physical capacities of the worker.

The physical capacities form is completed from data on the physical examination findings and whatever other clinical information is available. In deciding whether or not an employed worker requires a transfer as a result of illness or injury, physicians may find it particularly helpful to refer to the physical demands information on the worker's job as furnished by the job analyst. Likewise, in the initial placement situation, the physician may be aided by referring to such physical demands information on the specific jobs in order to decide whether or not a worker's physical capacities are suited to the physical demands of a specific job.

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Form ES-160
(Rev. 2-43)

Budget Bureau No. 11-R048.1.
Approval expires February 28, 1946.

WAR MANPOWER COMMISSION

BUREAU OF MANPOWER UTILIZATION

PHYSICAL CAPACITIES FORM

Name_____ Sex_____ Age_____ Height_____ Weight_____

PHYSICAL ACTIVITIES			
1	Walking	16	Throwing
2	Jumping	17	Pushing
3	Running	18	Pulling
4	Balancing	19	Handling
5	Climbing	20	Fingering
6	Crawling	21	Feeling
7	Standing	22	Talking
8	Turning	23	Hearing
9	Stooping	24	Seeing
10	Crouching	25	Color Vision
11	Kneeling	26	Depth Perception
12	Sitting	27	Working Speed
13	Reaching	28	
14	Lifting	29	
15	Carrying	30	

WORKING CONDITIONS			
51	Inside	66	Mechanical Hazards
52	Outside	67	Moving Objects
53	Hot	68	Cramped Quarters
54	Cold	69	High Places
55	Sudden Temp. Changes	70	Exposure to Burns
56	Humid	71	Electrical Hazards
57	Dry	72	Explosives
58	Wet	73	Radiant Energy
59	Dusty	74	Toxic Conditions
60	Dirty	75	Working With Others
61	Odors	76	Working Around Others
62	Noisy	77	Working Alone
63	Adequate Lighting	78	
64	Adequate Ventilation	79	
65	Vibration	80	

Blank Space = Full Capacity: √ = Partial Capacity: O = No Capacity

May work_____ hours per day_____ days per week. (If TB, cardiac or other disability requiring limited working hours).

May lift or carry up to_____ pounds.

Details of limitations for specific physical activities_____

Details of limitations for specific working conditions_____

Date_____ Physician_____

V. THE PHYSICAL CAPACITIES FORM

The number of copies of the physical capacities form prepared for each worker will depend on the procedures within a particular organization. Sometimes only one copy will be prepared and this will be transmitted to the placement officer. In other instances, the organization's procedure may provide for more copies so that one copy can be transmitted to the placement officer while another copy can be retained for the medical department files. In the latter instance, the medical department may wish to record the medical diagnosis on the same form. Ample space may be found at the bottom of the form even though no such heading has been provided.

Identifying Information

In this section of the physical capacities form, the physician should fill in the following information:

1. ***Name.*** The first name, middle initial, and last name of the worker.
2. ***Sex.*** M for male and F for female.
3. ***Age.*** Age at last birthday.
4. ***Height.*** Height in inches.
5. ***Weight.*** Weight in pounds.

Physical Activities

Included in this section of the physical capacities form are the 27 physical activities listed on the physical demands form. Numbers 28, 29, and 30 provide space for writing in other physical activities which the physician may decide the applicant should avoid. Definitions of these physical activities are found on page 125. The physician should be thoroughly familiar with each definition before filling out the form.

In making entries in this section, the physician should leave blank all physical activities for which the worker has full capacity, place a "V" before all physical activities for which the worker has partial capacity and place a "0" before all physical activities for which the worker has no capacity. Specific remarks should be made below in connection with all V'ed physical activities.

Working Conditions

Included in this section are the 27 working conditions listed on the physical demands form. Numbers 78, 79, and 80 provide space for writing in other working conditions which the physician may decide the applicant should avoid. Definitions of these working conditions are found on pages 125 to 126. The physician should be thoroughly familiar with each definition before filling out the form.

In making entries in this section, the physician should leave blank all working conditions to which the worker may be fully exposed, place a "V" before all working conditions to which the worker may be partially exposed, and place a "0" before all working conditions to which the worker may not be exposed. Specific remarks should be made below in connection with all V'ed working conditions.

Details of Limitations

After the physician has completed the check list, he should make specific comments concerning the physical activities and working conditions for which the worker possesses partial capacity. In so doing, he should keep certain points in mind with reference to the following items:

1. ***May work —— hours per day —— days per week.*** To be filled in only when there is a definite restriction on the number of hours which a worker such as a T. B. or Cardiac may work.

2. ***May lift or carry up to —— pounds.*** When either lifting or carrying or both have been V'ed, the physician should indicate the maximum number of pounds the worker should lift or carry. It is

impossible, at the present time, to determine exactly the maximum number of pounds which a restricted worker may lift or carry; however, it is obvious that the physician is the best qualified person to make such an estimate.

3. ***Details of limitations for specific physical activities.*** The following examples may serve as a guide for making notations concerning specific limitations.

Walking. "Should not walk up steep incline unless allowed to take his time." "Should not be required to walk more than 10 or 15 feet at a time." "May walk up to 2 or 3 miles per day."

Climbing. "Should not climb more than 10 or 12 feet unless allowed to take his time." "May climb when steps or rungs are not more than 6 inches apart."

Crawling. "May crawl occasionally during working day."

Standing. "Should alternately stand and sit every 15 or 20 minutes." "May stand if short rest is possible once an hour." "Must lean against bench or similar object while standing."

Turning. "May turn occasionally."

Stooping. "May stoop occasionally."

Crouching. "May crouch if allowed to straighten up every few minutes."

Kneeling. "May kneel if allowed to stand up when desired."

Sitting. "Must sit on chair with back."

Reaching. "May reach in all directions with left arm only." "May not reach above shoulder level with right arm."

Pushing and Pulling. "Capacity to pull equivalent to capacity to lift."

Handling. "Should not handle objects over 5 pounds." "Should avoid constant handling."

Fingering. "Restricted to right hand." "May finger extensively if rest periods may be taken when desired."

Feeling. "Feeling with left hand only."

Talking. "Unable to talk louder than normal volume."

Hearing. "May work where safety does not depend on auditory warnings." "Able to hear human voice when raised only."

Seeing. "Field of vision limited to right side."

Color Vision. "Red-green color blind."

4. ***Details of limitations for specific working conditions.***

Hot-Cold. "Should work in temperatures over 100° F. for short periods only." "May not work where temperature is below 40° F."

Sudden Temperature Changes. "Should not be subject to sudden temperature changes more than once or twice a day."

Humid. "Can't stand high humidity when temperature is over 90° F."

Wet. "Must not stand on wet floors."

Dusty. "Should avoid organic dusts."

Noisy. "Should not work near hammering or other loud noises."

Adequate Lighting and Ventilation. When it is imperative for the worker to have adequate lighting, or adequate ventilation, it is important to make a comment to that effect under *Details of limitations for specific working conditions* since no check will appear in the check list portion of that form. Some examples are: "Should never work in dim surroundings" and "Absolute minimum of glare required."

Vibration. "May work around occasional but not constant vibration."

Illustrations of Completed Physical Capacities Forms

The following completed physical capacities forms were prepared by physicians in conjunction with in-plan programs of physical demands analysis and physical capacities appraisal. They are included to serve as examples of how physical capacities forms may be prepared.

Form ES-150
(Rev. 2-45)

Budget Bureau No. 11-R068.1.
Approval expires February 28, 1946.

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

PHYSICAL CAPACITIES FORM

Name B. P. Myers Sex M Age 29 Height 72 Weight 190

PHYSICAL ACTIVITIES			
√	1 Walking		16 Throwing
O	2 Jumping	√	17 Pushing
O	3 Running	√	18 Pulling
	4 Balancing		19 Handling
O	5 Climbing		20 Fingering
O	6 Crawling		21 Feeling
√	7 Standing		22 Talking
	8 Turning		23 Hearing
√	9 Stooping		24 Seeing
√	10 Crouching		25 Color Vision
√	11 Kneeling		26 Depth Perception
	12 Sitting		27 Working Speed
	13 Reaching		28
√	14 Lifting		29
√	15 Carrying		30

WORKING CONDITIONS			
	51 Inside		66 Mechanical Hazards
O	52 Outside		67 Moving Objects
	53 Hot		68 Cramped Quarters
	54 Cold		69 High Places
O	55 Sudden Temp. Changes		70 Exposure to Burns
	56 Humid		71 Electrical Hazards
	57 Dry		72 Explosives
O	58 Wet		73 Radiant Energy
	59 Dusty		74 Toxic Conditions
	60 Dirty		75 Working With Others
	61 Odors		76 Working Around Others
	62 Noisy		77 Working Alone
	63 Adequate Lighting		78
	64 Adequate Ventilation		79
	65 Vibration		80

Blank Space = Full Capacity: √ = Partial Capacity: O = No Capacity

May work _____ hours per day _____ days per week. (If TB, cardiac or other disability requiring limited working hours).

May lift or carry up to 25 pounds.

Details of limitations for specific physical activities Effort in pushing and pulling should not exceed effort in lifting and carrying. Should not engage in either of activities 1, 7, 9, 10, and 11 for more than 15 minutes at a time.

Details of limitations for specific working conditions _____

Date October 2, 1944

Physician R. C. Blank, M. D.

Form ES-188
(Rev. 3-44)

Budget Bureau No. 11-R048.1.
Approval expires February 28, 1946.

WAR MANPOWER COMMISSION

BUREAU OF MANPOWER UTILIZATION

PHYSICAL CAPACITIES FORM

Name R. V. Byrnes Sex M Age 53 Height 68 Weight 168

PHYSICAL ACTIVITIES			
	1 Walking	√	16 Throwing
0	2 Jumping	√	17 Pushing
0	3 Running	√	18 Pulling
	4 Balancing		19 Handling
√	5 Climbing		20 Fingering
0	6 Crawling		21 Feeling
	7 Standing		22 Talking
	8 Turning		23 Hearing
	9 Stooping		24 Seeing
	10 Crouching		25 Color Vision
	11 Kneeling		26 Depth Perception
	12 Sitting		27 Working Speed
√	13 Reaching		28
√	14 Lifting		29
√	15 Carrying		30

WORKING CONDITIONS			
	51 Inside		66 Mechanical Hazards
	52 Outside		67 Moving Objects
	53 Hot	0	68 Cramped Quarters
	54 Cold		69 High Places
	55 Sudden Temp. Changes		70 Exposure to Burns
	56 Humid		71 Electrical Hazards
	57 Dry		72 Explosives
	58 Wet		73 Radiant Energy
	59 Dusty		74 Toxic Conditions
	60 Dirty		75 Working With Others
	61 Odors		76 Working Around Others
	62 Noisy		77 Working Alone
	63 Adequate Lighting		78
	64 Adequate Ventilation		79
	65 Vibration		80

Blank Space = Full Capacity: √ = Partial Capacity: 0 = No Capacity

May work _____ hours per day _____ days per week. (If TB, cardiac or other disability requiring limited working hours).

May lift or carry up to 35 pounds. Left arm only.

Details of limitations for specific physical activities Cannot climb where both arms are needed. Cannot engage in activities 13, 14, 15, 16, 17, 18 with right arm.

Details of limitations for specific working conditions _____

Date October 25, 1944

Physician R. G. Boyd, M. D.

Form ES-188
(Rev. 2-45)

Budget Bureau No. 11-R068.1.
Approval expires February 28, 1946.

WAR MANPOWER COMMISSION

BUREAU OF MANPOWER UTILIZATION

PHYSICAL CAPACITIES FORM

Name A. J. Allen Sex M Age 28 Height 68 Weight 130

PHYSICAL ACTIVITIES			
	1 Walking		16 Throwing
	2 Jumping		17 Pushing
	3 Running		18 Pulling
	4 Balancing		19 Handling
	5 Climbing		Fingering
	6 Crawling		21 Feeling
	7 Standing		22 Talking
	8 Turning		23 Hearing
	9 Stooping		24 Seeing
	10 Crouching	√	25 Color Vision
	11 Kneeling	O	26 Depth Perception
	12 Sitting		27 Working Speed
	13 Reaching		28
	14 Lifting		29
√	15 Carrying		30

WORKING CONDITIONS			
	51 Inside	√	66 Mechanical Hazards
	52 Outside	√	67 Moving Objects
	53 Hot		68 Cramped Quarters
√	54 Cold	O	69 High Places
O	55 Sudden Temp. Changes		70 Exposure to Burns
	56 Humid		71 Electrical Hazards
	57 Dry		72 Explosives
	58 Wet		73 Radiant Energy
	59 Dusty		74 Toxic Conditions
	60 Dirty		75 Working With Others
	61 Odors		76 Working Around Others
	62 Noisy		77 Working Alone
	63 Adequate Lighting		78
	64 Adequate Ventilation		79
	65 Vibration		80

Blank Space = Full Capacity: √ = Partial Capacity: O = No Capacity

May work _____ hours per day _____ days per week. (If TB, cardiac or other disability requiring limited working hours).

May lift or carry up to _____ pounds.

Details of limitations for specific physical activities Should not be required to look at close work for long period.

Details of limitations for specific working conditions Must avoid prolonged exposure to temperatures below 30°F. Should not work to left of mechanical hazards or moving objects.

Date October 1, 1944 Physician A. D. James, M. D.

Form ES-156
(Rev. 2-45)

Budget Bureau No. 11-R048.1.
Approval expires February 28, 1946.

WAR MANPOWER COMMISSION

BUREAU OF MANPOWER UTILIZATION

PHYSICAL CAPACITIES FORM

Name R. B. Long Sex M Age 6x Height 6x. Weight 130

PHYSICAL ACTIVITIES			
1	Walking	√16	Throwing
2	Jumping	√17	Pushing
3	Running	√18	Pulling
4	Balancing	√19	Handling
√ 5	Climbing	√20	Fingering
√ 6	Crawling	21	Feeling
7	Standing	22	Talking
8	Turning	23	Hearing
9	Stooping	24	Seeing
10	Crouching	25	Color Vision
11	Kneeling	26	Depth Perception
12	Sitting	27	Working Speed
√ 13	Reaching	28	
√ 14	Lifting	29	
√ 15	Carrying	30	

WORKING CONDITIONS			
51	Inside	66	Mechanical Hazards
52	Outside	67	Moving Objects
53	Hot	68	Cramped Quarters
54	Cold	69	High Places
55	Sudden Temp. Changes	70	Exposure to Burns
56	Humid	71	Electrical Hazards
57	Dry	72	Explosives
58	Wet	73	Radiant Energy
59	Dusty	74	Toxic Conditions
60	Dirty	75	Working With Others
61	Odors	76	Working Around Others
62	Noisy	77	Working Alone
63	Adequate Lighting	78	
64	Adequate Ventilation	79	
65	Vibration	80	

Blank Space = Full Capacity: √ = Partial Capacity: O = No Capacity

May work _____ hours per day _____ days per week. (If TB, cardiac or other disability requiring limited working hours).

May lift or carry up to 35 pounds.

Details of limitations for specific physical activities Cannot work with left arm, however, right arm has full capacity. No climbing, crawling, pushing, pulling, handling, or fingering where both arms are needed.

Details of limitations for specific working conditions _____

Date October 1, 1944

Physician A. D. James, M. D.

Form ES-150
(Rev. 2-43)

Budget Bureau No. 11-R048.1.
Approval expires February 28, 1946.

WAR MANPOWER COMMISSION

BUREAU OF MANPOWER UTILIZATION

PHYSICAL CAPACITIES FORM

Name John A. Smith Sex M Age 53 Height 68 Weight 163

PHYSICAL ACTIVITIES			
	1	Walking	16 Throwing
O	2	Jumping	17 Pushing
O	3	Running	18 Pulling
	4	Balancing	19 Handling
√	5	Climbing	20 Fingering
	6	Crawling	21 Feeling
	7	Standing	22 Talking
	8	Turning	23 Hearing
	9	Stooping	24 Seeing
	10	Crouching	25 Color Vision
	11	Kneeling	26 Depth-Perception
	12	Sitting	27 Working Speed
	13	Reaching	28
	14	Lifting	29
	15	Carrying	30

WORKING CONDITIONS			
	51	Inside	66 Machanical Hazards
	52	Outside	67 Moving Objects
	53	Hot	O 68 Cramped Quarters
	54	Cold	69 High Places
	55	Sudden Temp. Changes	70 Exposure to Burns
	56	Humid	71 Electrical Hazards
	57	Dry	72 Explosives
	58	Wet	73 Radiant Energy
	59	Dusty	74 Toxic Conditions
	60	Dirty	75 Working With Others
	61	Odors	76 Working Around Others
	62	Noisy	77 Working Alone
	63	Adequate Lighting	78
	64	Adequate Ventilation	79
	65	Vibration	80

Blank Space = Full Capacity: √ = Partial Capacity: O = No Capacity

May work _____ hours per day _____ days per week. (If TB, cardiac or other disability requiring limited working hours).

May lift or carry up to _____ pounds.

Details of limitations for specific physical activities Cannot climb ladders.

Details of limitations for specific working conditions _____

Date October 25, 1944

Physician R. G. Boyd, M. D.

VI. MATCHING PHYSICAL CAPACITIES WITH PHYSICAL DEMANDS

Placement officers must have complete information on the skill and physical requirements of jobs on the one hand, and on the other, they must have complete information on the skills, aptitudes, interests, and physical capacities of workers so that the worker and job may be properly matched. It is the problem of relating the physical characteristics of workers and of jobs that is presented here.

In order to relate physical capacities appraisals to physical demands analyses, placement officers should be thoroughly familiar with the technique of physical demands analysis and physical capacities appraisal. While it is true that Sections II, III, IV, and V have been directed primarily to the analyst and the physician, these sections also contain basic information for the placement officer.

The following illustrations of matching physical capacities information with physical demands information show how some actual placements have been made.

In the first example the physical capacities form on page 25 shows that Bill Jones, who formerly worked in a sheet metal shop, no longer possesses the physical capacities to work at the same place. As indicated in the physical demands form shown on page 26, his former job of Sheet Metal Fabricator requires, among other things, that he lift and carry up to 150 pounds of materials as well as to push and pull these materials to position them. His physical capacities form indicates that he can lift up to 25 pounds only and that he should not exert more than the equivalent effort in pushing and pulling. An opening exists for the job of Ventilation-Duct Installer in a nearby shipyard and it can be quickly found by examining the physical demands form on page 27 that this job requires that only 25 pounds be lifted, carried, pushed, and pulled. Moreover, this job does not require any of the other activities for which Bill Jones has limitations. Therefore, as far as Bill's physical capacities are concerned, he can be safely placed on the job of Ventilation-Duct Installer.

Form ES-150
(Rev. 2-45)

Budget Bureau No. 11-R048.1.
Approval expires February 28, 1945.

WAR MANPOWER COMMISSION

BUREAU OF MANPOWER UTILIZATION

PHYSICAL CAPACITIES FORM

Name Bill Jones Sex M Age 29 Height 72 Weight 190

	PHYSICAL ACTIVITIES		
	1 Walking		16 Throwing
O	2 Jumping	√	17 Pushing
O	3 Running	√	18 Pulling
	4 Balancing		19 Handling
	5 Climbing		20 Fingering
O	6 Crawling		21 Feeling
	7 Standing		22 Talking
	8 Turning		23 Hearing
	9 Stooping		24 Seeing
	10 Crouching		25 Color vision
	11 Kneeling		26 Depth Perception
	12 Sitting		27 Working Speed
	13 Reaching		28
√	14 Lifting		29
√	15 Carrying		30

	WORKING CONDITIONS		
	51 Inside		66 Mechanical Hazards
	52 Outside		67 Moving Objects
	53 Hot	O	68 Cramped Quarters
	54 Cold		69 High Places
	55 Sudden Temp. Changes		70 Exposure to Burns
	56 Humid		71 Electrical Hazards
	57 Dry		72 Explosives
	58 Wet		73 Radiant Energy
	59 Dusty		74 Toxic Conditions
	60 Dirty		75 Working With Others
	61 Odors		76 Working Around Others
	62 Noisy		77 Working Alone
	63 Adequate Lighting		78
	64 Adequate Ventilation		79
√	65 Vibration		80

Blank Space = Full Capacity: √ = Partial Capacity: O = No Capacity

May work _____ hours per day _____ days per week. (If TB, cardiac or other disability requiring limited working hours).

May lift or carry up to 25 pounds.

Details of limitations for specific physical activities Effort in pushing and pulling should not exceed effort in lifting and carrying.

Details of limitations for specific working conditions Should avoid frequent or constant vibrations.

Date October 2, 1944

Physician R. C. Black, M. D.

Form ES-190
(3-44)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R068.3.
Approval expires February 28, 1946.

PHYSICAL DEMANDS FORM

Job title Sheet Metal Fabricator Occupational code 4-80.010

Dictionary title SHEET METAL WORKER II

Industry Sheet Metal Industrial code

Branch Department Date 10-2-44

PHYSICAL ACTIVITIES				WORKING CONDITIONS			
X	1. Walking.	O	16. Throwing.	X	51. Inside.	X	66. Mechanical hazards.
O	2. Jumping.	X	17. Pushing.	O	52. Outside.	O	67. Moving objects.
O	3. Running.	X	18. Pulling.	O	53. Hot.	O	68. Cramped quarters.
O	4. Balancing.	X	19. Handling.	O	54. Cold.	O	69. High places.
O	5. Climbing.	X	20. Fingering.	O	55. Sudden temp. changes.	X	70. Exposure to burns.
O	6. Crawling.	O	21. Feeling.	O	56. Humid.	O	71. Electrical hazards.
X	7. Standing.	O	22. Talking.	O	57. Dry.	O	72. Explosives.
X	8. Turning.	O	23. Hearing.	O	58. Wet.	O	73. Radiant energy.
X	9. Stooping.	X	24. Seeing.	O	59. Dusty.	O	74. Toxic conditions.
O	10. Crouching.	O	25. Color vision.	O	60. Dirty.	O	75. Working with others.
O	11. Kneeling.	O	26. Depth perception	O	61. Odors.	X	76. Working around others.
O	12. Sitting.	O	27. Working speed.	X	62. Noisy.	O	77. Working alone.
X	13. Reaching.		28.	X	63. Adequate lighting.		78.
X	14. Lifting.		29.	X	64. Adequate ventilation.		79.
X	15. Carrying.		30.	O	65. Vibration.		80.

16—29364-1 U. S. GOVERNMENT PRINTING OFFICE

Details of physical activities: Stands, stoops, turns, and walks about benches and machines during job processes. Reaches for, grasps, lifts, and carries tools and materials weighing up to 150 pounds to position them on workbenches and in machine (1 hour). Grasps, handles, pushes, and pulls hacksaws, drills, mallets, punches, soldering irons, vise levers, and machine levers in assembling, repairing, and fabricating sheet metal parts (5 hours). Fingers calipers, dividers, micrometers, pencils, and scribers to mark and measure parts (1 hour). Reads blueprints and calibrations on measuring instruments (1 hour).

Details of working conditions: Works inside noisy sheet metal shop.

Details of hazards: Possibility of cuts from tools and sharp edges of sheet metal, and of burns from hot solder.

Form BES-180 (2-44)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R088.3.
Approval expires February 28, 1946.

PHYSICAL DEMANDS FORM

Job title Ventilation-Duct Installer Occupational code 4-88.622

Dictionary title SHEET-METAL WORKER III

Industry Ship and Boat Building and Repair Industrial code 3431

Branch Construction Department Outfitting Dock Date 10-1-44

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
X 1. Walking.	0 16. Throwing.	X 51. Inside.	X 66. Mechanical hazards.
0 2. Jumping.	X 17. Pushing.	X 52. Outside.	X 67. Moving objects.
0 3. Running.	X 18. Pulling.	0 53. Hot.	0 68. Cramped quarters.
0 4. Balancing.	X 19. Handling.	0 54. Cold.	X 69. High places.
X 5. Climbing.	X 20. Fingering.	0 55. Sudden temp. changes.	X 70. Exposure to burns.
0 6. Crawling.	0 21. Feeling.	0 56. Humid.	0 71. Electrical hazards.
X 7. Standing.	0 22. Talking.	0 57. Dry.	0 72. Explosives.
X 8. Turning.	0 23. Hearing.	0 58. Wet.	0 73. Radiant energy.
X 9. Stooping.	X 24. Seeing.	0 59. Dusty.	X 74. Toxic conditions.
X 10. Crouching.	0 25. Color vision.	0 60. Dirty.	0 75. Working with others.
X 11. Kneeling.	0 26. Depth perception.	X 61. Odors.	X 76. Working around others.
X 12. Sitting.	0 27. Working speed.	X 62. Noisy.	0 77. Working alone.
X 13. Reaching.	28.	X 63. Adequate lighting.	78.
X 14. Lifting.	29.	X 64. Adequate ventilation.	79.
X 15. Carrying.	80.	0 65. Vibration.	80.

16—85908-1 U. S. GOVERNMENT PRINTING OFFICE

Details of physical activities: Climbs about 50 feet up and down hull ramps and stairs about 6 times daily, half the time carrying tools and materials weighing up to 20 pounds. Stands, stoops, crouches, kneels, sits, and turns while handling and fingering felt strippings, hand tools, small nuts, bolts, and soldering iron to solder and assemble vents and flanges (7 hours). Lifts materials up to 25 pounds and carries up to 50 feet several times daily. Reaches for, grasps, pushes, and pulls vents and other parts weighing up to 25 pounds to place in position and pushes and pulls 8-pound drill frequently. Observes ruler graduations of 1/16-inch.

Details of working conditions: Works inside hulls (95%), outside in all weather (5%), and on staging up to 10 feet high (20%). Exposed to nearby chipping and hammering noises.

Details of hazards: Possibility of injury from falling as far as 10 feet down stairs, of respiratory, digestive and skin irritations from vapors and odors of paint and zinc chromate primer, of being struck and injured by materials carried or accidentally dropped by other workers, of cuts from sharp edges of sheet metal (reduced by gloves), and of impairment of hearing from nearby chipping and hammering noises.

After Bob Smith was injured he could no longer work at his old job of Chipper in the Outfitting Department. As indicated in the physical demands form on page 121, this job requires, among other things, that he must stand for 7 hours as well as do considerable climbing. His physical capacities appraisal form on page 120 indicates that he should not run or jump, that he should avoid prolonged walking and standing, that he may climb short distances occasionally, and that he should not engage in strendous pushing and pulling activities which involve the legs. By examining the physical demands form on pare 122 for the job of Chipper in the Plate Shop, it is found that this job requires a small amount of

walking; no jumping, running, climbing, or standing; and only 13 pounds of lifting, carrying, and pushing; and only 30 pounds of pulling. Therefore, Bob Smith may be safely placed on this job as far as his physical capacities are concerned.

Form ES-150
(Rev. 2-45)

Budget Bureau No. 11-R048.1.
Approval expires February 28, 1946.

WAR MANPOWER COMMISSION

BUREAU OF MANPOWER UTILIZATION

PHYSICAL CAPACITIES FORM

Name Bob Smith Sex M Age 29 Height 69 Weight 157

PHYSICAL ACTIVITIES			
√ 1	Walking	16	Throwing
O 2	Jumping	√ 17	Pushing
O 3	Running	√ 18	Pulling
4	Balancing	19	Handling
√ 5	Climbing	20	Fingering
6	Crawling	21	Feeling
√ 7	Standing	22	Talking
8	Turning	23	Hearing
9	Stooping	24	Seeing
10	Crouching	25	Color Vision
11	Kneeling	26	Depth Perception
12	Sitting	27	Working Speed.
13	Reaching	28	
√ 14	Lifting	29	
√ 15	Carrying	30	

WORKING CONDITIONS			
51	Inside	66	Mechanical Hazards
52	Outside	67	Moving Objects
53	Hot	68	Cramped Quarters
54	Cold	69	High Places
55	Sudden Temp. Changes	70	Exposure to Burns
56	Humid	71	Electrical Hazards
57	Dry	72	Explosives
58	Wet	73	Radiant Energy
59	Dusty	74	Toxic Conditions
60	Dirty	75	Working With Others
61	Odors	76	Working Around Others
62	Noisy	77	Working Alone
63	Adequate Lighting	78	
64	Adequate Ventilation	79	
65	Vibration	80	

Blank Space = Full Capacity: √ = Partial Capacity: O = No Capacity

May work _____ hours per day _____ days per week. (If TB, cardiac or other disability requiring limited working hours).

May lift or carry up to 35 pounds.

Details of limitations for specific physical activities Should avoid prolonged walking and standing. May climb short distances occasionally. Should not engage in strenuous pushing and pulling activities which involve the legs.

Details of limitations for specific working conditions _____

Date October 16, 1944

Physician C. A. Mills, M. D.

Form BE-180
(2-44)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R088.3.
Approval expires February 28, 1944.

PHYSICAL DEMANDS FORM

Job title Chipper Occupational code 6-84.920

Dictionary title CHIPPER, METAL

Industry Ship and Boat Building and Repair Industrial code 3431

Branch Construction Department Outfitting Date 10-15-44

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
X 1. Walking.	O 16. Throwing.	X 51. Inside.	X 66. Mechanical hazards.
O 2. Jumping.	X 17. Pushing.	X 52. Outside.	X 67. Moving objects.
O 3. Running.	X 18. Pulling.	O 53. Hot.	X 68. Cramped quarters.
O 4. Balancing.	X 19. Handling.	O 54. Cold.	X 69. High places.
X 5. Climbing.	O 20. Fingering.	O 55. Sudden temp. changes.	O 70. Exposure to burns.
X 6. Crawling.	O 21. Feeling.	O 56. Humid.	O 71. Electrical hazards.
X 7. Standing.	O 22. Talking.	O 57. Dry.	O 72. Explosives.
X 8. Turning.	O 23. Hearing.	O 58. Wet.	O 73. Radiant energy.
X 9. Stooping.	X 24. Seeing.	O 59. Dusty.	X 74. Toxic conditions.
X 10. Crouching.	O 25. Color vision.	O 60. Dirty.	O 75. Working with others.
X 11. Kneeling.	O 26. Depth perception.	O 61. Odors.	X 76. Working around others.
X 12. Sitting.	O 27. Working speed.	X 62. Noisy.	O 77. Working alone.
X 13. Reaching.	28.	O 63. Adequate lighting.	78.
X 14. Lifting.	29.	O 64. Adequate ventilation.	79.
O 15. Carrying.	30.	X 65. Vibration.	80.

16—20304-1 U. S. GOVERNMENT PRINTING OFFICE

Details of physical activities: Climbs about 100 feet up and down hull ramps twice daily, and about 60 feet up and down stairs and ladders 16 times daily, half the time while carrying 40 pounds of equipment (1 hour). Stands, sits, stoops, kneels, crouches, and turns, reaching above and below shoulder height to grasp, lift, handle, push and pull 13-pound chipping gun (7 hours). Observes chipping operations (7 hours).

Details of working conditions: Works in and around all parts of ship (frequently in cramped quarters).

Details of hazards: Possibility of injury from falling as far as 20 feet, of respiratory irritation from welding and burning fumes, of flashes from nearby welding arcs, of injury from flying metal particles, and of impairment of hearing from chipping and hammering noises and vibration.

Form ES-120 (3-44)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R048.3.
Approval expires February 28, 1945.

PHYSICAL DEMANDS FORM

Job title Chipper Occupational code 6-84.920

Dictionary title CHIPPER, METAL

Industry Ship and Boat Building and Repair Industrial code 3431

Branch Construction Department Plate Shop Date 10-18-44

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
X 1. Walking.	O 16. Throwing.	X 51. Inside.	X 66. Mechanical hazards.
O 2. Jumping.	X 17. Pushing.	X 52. Outside.	X 67. Moving objects.
O 3. Running.	X 18. Pulling.	O 53. Hot.	O 68. Cramped quarters.
O 4. Balancing.	X 19. Handling.	O 54. Cold.	O 69. High places.
O 5. Climbing.	O 20. Fingering.	O 55. Sudden temp. changes.	O 70. Exposure to burns.
X 6. Crawling.	O 21. Feeling.	O 56. Humid.	O 71. Electrical hazards.
O 7. Standing.	O 22. Talking.	O 57. Dry.	O 72. Explosives.
X 8. Turning.	O 23. Hearing.	O 58. Wet.	O 73. Radiant energy.
X 9. Stooping.	X 24. Seeing.	O 59. Dusty.	X 74. Toxic conditions.
X 10. Crouching.	O 25. Color vision.	O 60. Dirty.	O 75. Working with others.
X 11. Kneeling.	O 26. Depth perception.	O 61. Odors.	X 76. Working around others.
X 12. Sitting.	O 27. Working speed.	X 62. Noisy.	O 77. Working alone.
X 13. Reaching.	28.	O 63. Adequate lighting.	78.
X 14. Lifting.	29.	O 64. Adequate ventilation.	79.
X 15. Carrying.	30.	X 65. Vibration.	80.

16—39366-1 U. S. GOVERNMENT PRINTING OFFICE

Details of physical activities: Intermittently crawls, stoops, crouches, kneels, sits, and turns while reaching forward to lift, handle, push, and pull 13-pound chipping gun in chipping on flat plates (7 hours). Walks up to 100 feet while carrying chipping gun, and pulling 30-pound hose 3 or 4 times per day. Observes chipping operations.

Details of working conditions: Works inside (70%) and outside in good weather (30%).

Details of hazards: Possibility of respiratory irritation from welding and burning fumes, of flashes from nearby welding arcs, of injury from flying metal particles, of cuts from sharp edges of tools and material, and of impairment of hearing from chipping and hammering noises.

William A. Bradford is seeking employment for the first time. He is interested in entering a trade as an apprentice. Reference to the physical capacities form on page 123 reveals that this man is restricted with respect to climbing and is limited with respect to the working conditions to which he can be exposed. Under the medical standards in existence in many plants, he would be rejected for employment. Moreover, there are very few apprenticeable occupations which do not present those hazards to which he should not be subjected. With physical demands information available on a large number of apprenticeable jobs, it is a relatively simple matter to determine a job such as Terrazzo Worker (see physical demands form on p. 124) for which William A. Bradford has the capacity to compete successfully with his fellow workers without hazard to himself or others.

Form ES-150
(Rev. 2-45)

Budget Bureau No. 11-R048.1.
Approval expires February 28, 1946.

WAR MANPOWER COMMISSION

BUREAU OF MANPOWER UTILIZATION

PHYSICAL CAPACITIES FORM

Name William A. Bradford Sex M Age 30 Height 69 Weight 170

	PHYSICAL ACTIVITIES			WORKING CONDITIONS			
	1 Walking		16 Throwing		51 Inside	O	66 Mechanical Hazards
	2 Jumping		17 Pushing		52 Outside	O	67 Moving Objects
	3 Running		18 Pulling		53 Hot		68 Cramped Quarters
	4 Balancing		19 Handling		54 Cold	O	69 High Places
O	5 Climbing		20 Fingering		55 Sudden Temp. Changes	O	70 Exposure to Burns
	6 Crawling		21 Feeling		56 Humid	O	71 Electrical Hazards
	7 Standing		22 Talking		57 Dry	O	72 Explosives
	8 Turning		23 Hearing		58 Wet		73 Radiant Energy
	9 Stooping		24 Seeing		59 Dusty		74 Toxic Conditions
	10 Crouching		25 Color Vision		60 Dirty	O	75 Working With Others
	11 Kneeling		26 Depth Perception		61 Odors		76 Working Around Others
	12 Sitting		27 Working Speed		62 Noisy	O	77 Working Alone
	13 Reaching		28		63 Adequate Lighting		78
	14 Lifting		29		64 Adequate Ventilation		79
	15 Carrying		30		65 Vibration		80

Blank Space = Full Capacity: √ = Partial Capacity: O = No Capacity

May work _____ hours per day _____ days per week. (If TB, cardiac or other disability requiring limited working hours).

May lift or carry up to _____ pounds.

Details of limitations for specific physical activities _____

Details of limitations for specific working conditions _____

Someone working near this man should come to Medical department for instructions on how to look after him during a seizure.

Date October 18, 1944 Physician C. A. Mills, M. D.

659270°—45——9

Form MS-180 (2-44)

WAR MANPOWER COMMISSION
BUREAU OF MANPOWER UTILIZATION

Budget Bureau No. 11-R088.3.
Approval expires February 28, 1946.

PHYSICAL DEMANDS FORM

Job title Terrazzo and Mosaic Worker Occupational code 5-24.510

Dictionary title TERRAZZO WORKER

Industry Construction Industrial code

Branch Department Date 9-15-44

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
X 1. Walking.	X 16. Throwing.	X 51. Inside.	O 66. Mechanical hazards.
O 2. Jumping.	X 17. Pushing.	X 52. Outside.	O 67. Moving objects.
O 3. Running.	X 18. Pulling.	O 53. Hot.	O 68. Cramped quarters.
O 4. Balancing.	X 19. Handling.	O 54. Cold.	O 69. High places.
O 5. Climbing.	O 20. Fingering.	O 55. Sudden temp. changes.	O 70. Exposure to burns.
X 6. Crawling.	O 21. Feeling.	O 56. Humid.	O 71. Electrical hazards.
X 7. Standing.	X 22. Talking.	O 57. Dry.	O 72. Explosives.
X 8. Turning.	X 23. Hearing.	X 58. Wet.	O 73. Radiant energy.
X 9. Stooping.	X 24. Seeing.	X 59. Dusty.	O 74. Toxic conditions.
X 10. Crouching.	X 25. Color vision.	X 60. Dirty.	O 75. Working with others.
X 11. Kneeling.	O 26. Depth perception.	O 61. Odors.	X 76. Working around others.
O 12. Sitting.	O 27. Working speed.	X 62. Noisy.	O 77. Working alone.
X 13. Reaching.	28.	X 63. Adequate lighting.	78.
X 14. Lifting.	29.	O 64. Adequate ventilation.	79.
O 15. Carrying.	30.	X 65. Vibration.	80.

16—20360-1 U. S. GOVERNMENT PRINTING OFFICE

Details of physical activities: Walks up to 100 feet around job site. Stoops, reaches for, grasps, lifts, and handles a roll of roofing paper weighing up to 20 pounds to spread it over sub-floor as a base (1 hour). Intermittently stoops, crouches, kneels, or crawls, and using either hand grasps and dexterously manipulates a trowel to apply and spread terrazzo mixture using a push and pull stroke (4 hours). Using either or both hands, throws marble chips on soft surface of composition. Stands, walks, and turns to push and pull an electric floor surfacing machine (3 hours) to grind marble and polish surfaces. Observes all operations using color vision in working with color patterns. Receives and gives oral instructions.

Details of working conditions: Works with others inside and outside in adequately lighted surroundings. Exposed to dust, dirt, and moisture from sand mixing operations, and to noise and vibration from polishing and grinding machine.

Details of hazards: None.

VII. DEFINITIONS OF PHYSICAL ACTIVITIES

Definitions are included below for those items about which there might be some question or lack of understanding. Those items which are self-explanatory are not included.

4. ***Balancing.*** Walking, standing, or running on narrow, slippery, or elevated surfaces by maintaining body equilibrium to prevent falling.

5. ***Climbing.*** Ascending or descending ladders, stairs, scaffolding, ramps, poles, ropes, and the like, using the feet and legs or using hands and arms as well.

6. ***Crawling.*** Moving about on the hands and knees or hands and feet.

8. ***Turning.*** Twisting partly around from a stationary standing or sitting position, usually involving the spine, trunk, neck, and legs.

9. ***Stooping.*** Bending the body downward and forward by bending the spine at the waist; not to be confused with Crouching.

10. ***Crouching.*** Bending the body downward and forward by bending the legs and spine; not to be confused with Stooping.

11. ***Kneeling.*** Bending the legs at the knees to come to rest on the knee or knees.

13. ***Reaching.*** Extending the hands and arms in any direction.

14. ***Lifting.*** Raising or lowering an object from one level to another; includes upward pulling.

15. ***Carrying.*** Transporting an object, usually by holding it in the hands and arms.

16. ***Throwing.*** Propelling an object through space by swinging motion of the hand and arm with or without the use of tongs or other devices.

17. ***Pushing.*** Exerting force upon an object so that the object moves away from the force, including slapping, striking, kicking, and treadle actions.

18. ***Pulling.*** Exerting force upon an object so that the object moves toward the force, including jerking.

19. ***Handling.*** Seizing, holding, grasping, turning, or otherwise working with the hand or hands; not to be confused with Fingering.

20. ***Fingering.*** Picking, pinching, or otherwise working with the fingers primarily (rather than with the whole hand or arm, as in Handling).

21. ***Feeling.*** Perceiving such attributes of objects as size, shape, temperature or texture, by means of receptors in the skin, typically those of the finger tips.

25. ***Color Vision.*** Perceiving the color of objects by sight.

26. ***Depth Perception.*** Perceiving relative or absolute distances of an object from the observer or from one object to another.

27. ***Working Speed.*** The rate of speed the job requires of the worker. This item is checked with an "X" only where the job requires a significantly high rate of working speed.

VIII. DEFINITIONS OF WORKING CONDITIONS

51. ***Inside.*** Indoor protection from weather conditions.

52. ***Outside.*** Out of doors, or under an overhead covering with slight protection from the weather.

53. ***Hot.*** Temperature sufficiently high to cause perceptible bodily discomfort.

54. ***Cold.*** Temperature sufficiently low to cause perceptible bodily discomfort.

55. ***Sudden Temperature Changes.*** Variations in temperature which are sufficiently marked and abrupt to cause perceptible bodily reactions.

56. ***Humid.*** Atmospheric condition with moisture content sufficiently high to cause perceptible bodily discomfort.

57. ***Dry.*** Atmospheric condition with

moisture content sufficiently low to cause perceptible bodily discomfort.

58. ***Wet.*** Contact with water or other liquids.

59. ***Dusty.*** Air filled with small particles of any kind such as textile dust, flour, wood, leather, feathers, etc., and inorganic dust including silica and asbestos, which make the workplace unpleasant or are the source of occupational diseases.

60. ***Dirty.*** Contact with or exposure to dirt, litter, soiled materials, etc.

61. ***Odors.*** Perceptible smells, either toxic or nontoxic.

62. ***Noisy.*** Sufficient sound to cause thought distraction or possible injury to the sense of hearing.

63. ***Adequate Lighting.*** Sufficient lighting to minimize eye strain. (A zero before this item on the physical demands form indicates the lighting is either insufficient or excessive. Explain under "Details of Working Conditions." A zero or a check will not occur before this item on the physical capacities form; consequently, when it is imperative for the worker to have adequate lighting, it is important to make a comment to that effect under *Details of limitations for specific working conditions.*)

64. ***Adequate Ventilation.*** Sufficient ventilation to cause neither a feeling of suffocation nor exposure to drafts. (A zero before this item on the physical demands form indicates that the ventilation is insufficient or excessive. Explain under "Details of Working Conditions." A zero or a check will not occur before this item on the physical capacities form; consequently, when it is imperative for the worker to have adequate ventilation it is important to make a comment to that effect under *Details of limitations for specific working conditions.*)

65. ***Vibration.*** Production of an oscillating or quivering movement of the body or strain on the muscles, particularly of the legs and arms, as from repeated motion, pressure, or shock.

66. ***Mechanical Hazards.*** Exposure to materials or mechanical parts involving the risk of bodily injury.

67. ***Moving Objects.*** Exposure to moving equipment and objects such as overhead cranes, hand and motor driven vehicles, falling objects, etc., which involve the risk of bodily injury; also the act of operating such equipment.

68. ***Cramped Quarters.*** Workplace where freedom of movement is restricted or where worker cannot maintain an upright position.

69. ***High Places.*** Workplace at an elevation above the floor or ground level from which it is possible to fall and be injured.

70. ***Exposure to Burns.*** Workplace involving the risk of being burned from hot materials, fire, or chemical agents.

71. ***Electrical Hazards.*** Exposure to high-tension wires, transformers, busbars, or other uninsulated or unshielded electrical equipment which involve the risk of electric shock.

72. ***Explosives.*** Exposure to explosive gases, vapors, dusts, liquids, and substances which involve the risk of bodily injury.

73. ***Radiant Energy.*** Exposure to radio-active substances (radium, uranium, thorium, etc.), X-rays, ultra-violet rays, or infrared rays, which involve the risk of impairment of sight or general or localized disabling conditions.

74. ***Toxic Conditions.*** Exposure to toxic dusts, fumes, gases, vapors, mists, or liquids which cause general or localized disabling conditions as a result of inhalation or action on the skin.

75. ***Working With Others.*** Job requires occupational cooperation with fellow workers, or direct contact with the public.

76. ***Working Around Others.*** Job requires independent occupational effort but in proximity to fellow workers or the public.

77. ***Working Alone.*** Job requires independent occupational effort and virtually no contact with fellow workers or the public.

IX. JOB SPECIFICATION FORM

EMPLOYER'S NAME

ADDRESS

TELEPHONE | PERSON TO SEE—HOW TO REACH

INDUSTRY | CODE

SUMMARY OF JOB

OCCUPATIONAL TITLE | CODE

EMPLOYER'S JOB TITLE—DEPARTMENT | CODE

HOURS OF WORK

UNION

RATE OF PAY | SEX | AGE

SKILLS, KNOWLEDGE, ABILITIES

EXPERIENCE

EDUCATION AND TRAINING

DATE | PREPARED BY | APPROVED BY

16—43953-1

USES-541 (2-45) BUDGET BUREAU APPROVAL NO. 11-R221

JOB SPECIFICATION FORM

WAR MANPOWER COMMISSION
UNITED STATES EMPLOYMENT SERVICE

Reverse of form:

PHYSICAL ACTIVITIES		WORKING CONDITIONS	
... 1. Walking	...16. Throwing	...51. Inside	...66. Mechanical hazards
... 2. Jumping	...17. Pushing	...52. Outside	...67. Moving objects
... 3. Running	...18. Pulling	...53. Hot	...68. Cramped quarters
... 4. Balancing	...19. Handling	...54. Cold	...69. High places
... 5. Climbing	...20. Fingering	...55. Sudden temperature changes	...70. Exposure to burns
... 6. Crawling	...21. Feeling	...56. Humid	...71. Electrical hazards
... 7. Standing	...22. Talking	...57. Dry	...72. Explosives
... 8. Turning	...23. Hearing	...58. Wet	...73. Radiant energy
... 9. Stooping	...24. Seeing	...59. Dusty	...74. Toxic conditions
...10. Crouching	...25. Color vision	...60. Dirty	...75. Working with others
...11. Kneeling	...26. Depth perception	...61. Odors	...76. Working around others
...12. Sitting	...27. Working speed	...62. Noisy	...77. Working alone
...13. Reaching	...28.	...63. Adequate lighting	...78. .....
...14. Lifting	...29.	...64. Adequate ventilation	...79. .....
...15. Carrying	...30.	...65. Vibration	...80. .....

DETAILS OF PHYSICAL ACTIVITIES

DETAILS OF WORKING CONDITIONS AND HAZARDS

MISCELLANEOUS COMMENTS

REFERENCE MATERIALS

OTHER SOURCES OF WORKERS

TESTS

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INDEX

A

Page

Absentee rate 27–29
Accidents:
  insurance for 29, 47–49
  rate of 27–29
Advertisements 30–31
Aircraft Warning Service 35
American Heart Association 64
American Red Cross 37
Amputations 56
Application cards 20–21
Aptitude tests 5, 13
Armed Services 44
Arteries, diseases of 65–66
Arthritis 55
Artificial appliances 33–34, 37, 56
Association of Casualty and Surety Executives 29, 49n
Asthma 61–62
Athetosis 84

B

Back injuries 58–59
Blindness:
  classifications of 71
  reports 72
  work capacities 71–72
Blind persons 31, 36, 39
Brain tumors 74
Bronchiectasis 62
Bronchitis 62
Brown, W. D 92
Buerger's disease 55, 65–66

C

Cancer 74
Cardiac diseases 63–65
Cardiovascular handicaps 62–66
Cataract 67
Cerebral palsy 83–84
Choroiditis 67
Civil Air Patrol 35
Civil Service Commission:
  Untapped Manpower 28, 47n
  veterans' preference 44–45, 47
  war service legislation 47
Coding of, disabilities 11–12, 21
Color blindness 69

Page

Community agencies:
  relationships of United States Employment Service with and services offered by 9, 33–39
  use of for promotional activities 30, 37–38
Conjunctivitis 67
Convulsive seizures 81–83
Coronary disease 63

D

Deaf persons 39, 51–54
  State vocational rehabilitation agencies 38
Definition of handicaps 1
Dementia praecox 89
Demonstrations 31, 36
Diabetes 74–75
Diarrhea and Dysentery 79
Dictionary of Occupational Titles 25
Diplopia 68
Directory of community agencies 37–38
Dorsett, J. Dewey 49n
Dwarfs, placement of 77

E

Emotional handicaps 3–4, 86–92
Emphysema, pulmonary 62
Employer interview, preparing applicant for 31
Employer resistance 2–3, 26–30
Empyema 62
Encephalitis 81
Epilepsy 81–83

F

Fair Labor Standards Act 46
Far-sightedness 68
Federal Security Agency 33
Field visits, use of in promotional activities 31
Filariasis 78–79
Follow-up 39–40
Ford Motor Co 92
Form for Physical Capacities Appraisal 93, 108
Form for Physical Capacities Report 16–19

Page

Form for Physical Demands Analysis---- 93, 97

G

"G. I." Bill---- 43–44
Giantism---- 77
Glandular disturbances---- 76–77
Glaucoma---- 68
Guide for Interviewing Handicapped: Applicants- 9, 13, 20, 21, 93
facsimile of---- 22

H

Hard-of-hearing---- 37, 51–54
Hearing defects---- 51–54
Heart defects---- 62–66
Hernia---- 72–73
High blood pressure---- 66
Homework---- 41
Hospitalized veterans, registration for employment of---- 42–43
Hospitals---- 13, 14, 37, 38
veterans, registration in---- 42–43
Hyperopia---- 68
Hypertension---- 66
Hypertensive heart disease---- 63
Hyperthyroidism (myxedema)---- 77
Hyperthyroidism (toxic goiter)--- 76–77
Hypomania---- 90
Hypotension---- 66
Hysteria, conversion---- 91

I

Infantile paralysis---- 55
In-plant Placement---- 93–127
functional chart for---- 32
Insurance rates---- 29–30
Interviewing handicapped applicants (*see also* Guide for Interviewing Handicapped Applicants)---- 12–13, 20, 21

J

Job Analysis (*see also* Physical Demands Analysis)---- 5, 31, 93
Job descriptions---- 25
Job families---- 25
Job specification form---- 127

K

Keratitis---- 67
Kidney diseases---- 76

L

Page

Laws affecting the handicapped-- 45–49
Laymen's League for Epilepsy--- 37
Legal responsibility of USES for placement of handicapped--- 4
Lighting---- 70
List of handicaps---- 11–12
Lists of suitable jobs, undesirability of---- 6, 25–26
Low blood pressure---- 66

M

Malaria---- 77–78
Management-Labor Committees-- 5, 9
Manic-depressive psychosis---- 89–90
Manual of Industrial Hygiene---- 66
Maritime Commission---- 35
Medical dictionaries---- 51
Medical examinations and reports (*see also* Physical capacities reports)---- 13, 21, 27
Mentally retarded---- 3, 84–86
Michigan Industrial Mental Health Council, grouping of mental disorders---- 88
Midgets---- 77
Military personnel, special aids for placing in civilian jobs---- 25
Minneapolis Artificial Limb Co., studies of---- 28
Monocular vision---- 71
Multiple sclerosis---- 81
Muscular dystrophy---- 55
Myopia---- 68–69

N

National Association of Manufacturers---- 73n
National Conference on the Employment of the Disabled---- 92
National Foundation for Infantile Paralysis---- 37
National Industrial Conference Board---- 28
National Society for Crippled Children---- 37
National Society for the Blind--- 37
National Tuberculosis Association- 37
Navy Department---- 47
Near-sightedness---- 68–69
Nephritis---- 76
Neurasthenia---- 91
Neuritis---- 80–81

Page

Neurological handicaps---- 80–84
Neurosis---- 90–91
Nystagmus---- 69

O

Obesity---- 77
Occupational classification---- 23–24
Occupational handicap---- 2
Older workers---- 7
Oral trade questions---- 25
Orthopedic handicaps---- 54–59
Osteomyelitis---- 55

P

Palsy---- 83–84
Paranoia---- 89
Parkinson's disease---- 84
Phlebitis---- 66
Physical Capacities Appraisal- 5, 93–126
  definitions of physical activities- 125
  definitions of working conditions---- 125–126
  details of limitations for physical activities---- 109–110
  details of limitations for working conditions---- 108, 110
  form for use in---- 108
  identifying information---- 109
  illustrations of completed forms---- 111–115, 117–124
Physical Capacities Reports---- 13–19
  revealing information from- 14–15, 51
  standard Physical Capacities Report form USES–546 and 546A (*see also* Specific handicaps as *orthopedic*, etc., for reports concerning)---- 16–19
Physical Demands Analysis--- 5, 93–126
  definitions of physical activities---- 125
  definitions of working conditions---- 125–126
  details of hazards---- 100–101
  details of physical activities--- 98–100
  details of working conditions--- 100
  form for use in---- 97
  identifying information---- 97
  illustrations of completed forms---- 102–106, 117–124
Physical Demands Approach (*see also* Physical Capacities Appraisal and Physical Demands Analysis)---- 5–9, 93–95
Pneumothorax---- 59
Poliomyelitis---- 55
Production rate---- 27–29
Promotional activities---- 30–31
Prosthetic appliances---- 33–34, 37, 56
Psychiatry---- 2
Psychoneurosis---- 90–91
Psychosis---- 89–90
Public Law No. 16---- 43
Public Law No. 113---- 33
Public Law No. 346---- 43–44
Pulmonary emphysema---- 62
Pulmonary empyema---- 62
Pulmonary tuberculosis---- 56–61

R

Randolph Sheppard Act---- 46
Referral of handicapped applicants---- 26–31
Respiratory handicaps---- 59–62
Retinitis---- 67
Rheumatic fever---- 63

S

Schizophrenia---- 89
Schools---- 38
Scleritis---- 67
Sclerosis, multiple---- 81
"Second-injury" insurance---- 29, 48
Selective Placement, definition of- 5
Selective Service System---- 13, 44
Sheltered workshops---- 41
Silicosis---- 61
Single-standard medical examinations---- 3, 27, 49
Snellen vision charts---- 69
Social attitudes---- 2–3
Social responsibility---- 4
Social Security Act---- 46
Socially handicapped---- 1, 2
Spastic paralysis---- 83–84
Special Aids for Placing Military Personnel in Civilian Jobs-- 25
Speech defects---- 54
Spinal defects---- 58–59
State agencies. (*See* Vocational rehabilitation agencies.)
State consultant for the handicapped---- 4, 8
Stomach ulcers---- 73–74
Strabismus---- 68
Strokes---- 83, 84
Syphilitic cardiovascular disease-- 64

Page

T

Telephone solicitation, use of in promotional activities 31
Thoracoplasty 59–60
Thromboangiitis obliterans 55, 65–66
Thyroid 76–77
Trade tests 25
Training of interviewers 9–10
Trauma 54
Tropical diseases 77–79
Tuberculosis of the bone 55
Tuberculosis, pulmonary 59–61
Tumors 74
Turnover 27–29

U

United States Army 13
United States Bureau of Labor Statistics 3, 28
United States Citizens Defense Corps 35
United States Department of Labor 46, 48n
United States Navy 13
United States Office of Education 27
United States Office of Vocational Rehabilitation 27, 33–36
United States Public Health Service 3, 66, 75

V

Varicose veins 66
Veins, diseases of 65–66
Venereal diseases 75–76
Venereal Disease Division, United States Public Health Service 75
Veterans 42–45
Veterans' Administration 13, 43–44
Visual handicaps 67–72
Vocational rehabilitation agencies:
State agencies 33
Agencies for the blind 36
Agencies for the deaf 38

W

Wage and hour regulations 46–47
Wagner-Peyser Act 4, 35
Waiver 16
War Department 47
War Shipping Administration 35
Western Electric Company, studies of physically handicapped 28
Workmen's compensation 29, 47–49

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